G 1987

CU6-H06601-1L

MERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE

BULLETIN OF THE HISTORY OF MEDICINE

HNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

[illegible] NUMBER 1

Founded by Henry E. Sigerist

Editor
Caroline Hannaway

Editorial Assistant **Carol Hamblen**

Advisory Editorial Board

Gert H. Brieger, *Chairman*

Darrel W. Amundsen
Edward C. Atwater
Saul Benison
John B. Blake
Jerome J. Bylebyl
James H. Cassedy
Luke E. Demaitre
Toby Gelfand
Gerald N. Grob
Robert P. Hudson
Saul Jarcho
Genevieve Miller
John Norris
John Parascandola
Guenter B. Risse
Charles E. Rosenberg
Barbara G. Rosenkrantz
Todd L. Savitt
Wesley D. Smith
Thomas B. Turner

P, 25,973

Publisher

The Johns Hopkins University Press

Cover: This year's *Bulletin* covers will be devoted to the theme of saints and medicine. The spring issue shows the relationship of a saint to a specific disease. It depicts the third-century hermit St. Anthony the Great being disturbed in his meditation by the appeal of a victim of ergotism, otherwise known as St. Anthony's fire. Woodcut from Hans von Gersdorff, *Feldtbuch der Wundtartzney* (Strasbourg, 1517). Courtesy of the National Library of Medicine.

Second-class postage paid at Baltimore, Maryland and at additional mailing offices
© Copyright 1987 by The Johns Hopkins University Press
ISSN 0007-5140

Bulletin of The History of Medicine

SPRING 19[illegible] VOLUME 61 NUMBER 1

BULLETIN OF THE HISTORY OF MEDICINE

THE AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE
THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

CONTENTS

Scarlet Fever and Confinement. The Edwardian Debate over Isolation Hospitals
JOHN M EYLER 1

Madness and Medicine: Trends in American Medical Therapeutics for Insanity, 1820–1860
SAMUEL B THIELMAN 25

The Diagnostic Dream in Ancient Medical Theory and Practice
STEVEN M OBERHELMAN 47

The Society of Chemical Physicians, the New Philosophy, and the Restoration Court
HAROLD J COOK 61

The Henry Phipps Institute, 1903–1937: Pioneering Tuberculosis Work with an Urban Minority
DAVID MCBRIDE 78

Medico-Historical News and Activities
- Correspondence and Reports 98
- Announcements 99

Book Reviews 107

Sander L Gilman *Difference and Pathology Stereotypes of Sexuality, Race and Madness*
Reviewer: TOBY GELFAND 107

Jacques Postel and Claude Quétel. *Nouvelle histoire de la psychiatrie.*
Reviewer JAN GOLDSTEIN 108

Edwin R. Wallace IV. *Historiography and Causation in Psychoanalysis An Essay on Psychoanalysis and Historical Epistemology.*
Reviewer. MATTHIAS M. WEBER 110

Thomas S Chen and Peter S. Chen. *Understanding the Liver. A History*
Reviewer. JOEL D HOWELL 111

Giuseppe Roccatagliata. *A History of Ancient Psychiatry.*
Reviewer BENNETT SIMON 112

P H Schrijvers (ed.). *Eine medizinische Erklärung der mannlichen Homosexualität aus der Antike.*
Reviewer WESLEY D SMITH 113

Stephanus of Athens· Commentary on Hippocrates' Aphorisms, Sections I–II, trans Leendert G. Westerink.
Reviewer OWSEI TEMKIN 115

Timothy S. Miller *The Birth of the Hospital in the Byzantine Empire*
Reviewer LAWRENCE J BLIQUEZ 116

John Scarborough (ed.) *Symposium on Byzantine Medicine.*
Reviewer DARREL W AMUNDSEN 118

Konrad Goehl (ed.). *Guido d'Arezzo der Jüngere und sein "Liber mitis"*
Reviewer LUKE DEMAITRE 119

Ortrun Riha (ed) *Meister Alexanders Monatsregeln Untersuchungen zu einem spätmittelalterlichen Regimen duodecim mensium mit kritischer Textausgabe*
Reviewer FRANCIS B BRÉVART 120

John W. Shirley and F. David Hoeniger (eds) *Science and Arts in the Renaissance*
Reviewer. NANCY G SIRAISI 121

Ann G Carmichael *Plague and the Poor in Renaissance Florence.*
Reviewer RICHARD PALMER 122

John Tate Lanning. *The Royal Protomedicato The Regulation of the Medical Profession in the Spanish Empire*
Reviewer J D GOODYEAR 123

Marc Jeannerod. *The Brain Machine The Development of Neurophysiological Thought*
Reviewer FRANCIS SCHILLER 125

Evelyn Ward Gay. *The Medical Profession in Georgia, 1733–1983*
Reviewer JAMES G BURROW 126

John D Post. *Food Shortage, Climatic Variability, and Epidemic Disease in Preindustrial Europe: The Mortality Peak in the Early 1740s*
Reviewer JAMES H CASSEDY 127

W F. Bynum and Roy Porter (eds.). *William Hunter and the Eighteenth-Century Medical World*
Reviewer. WILLIAM LEFANU 128

Dorothy A. Stansfield *Thomas Beddoes, M.D., 1760–1808: Chemist, Physician, Democrat*
Reviewer CHRISTOPHER LAWRENCE 130

Judith Schneid Lewis. *In the Family Way Childbearing in the British Aristocracy, 1760–1860*
Reviewer ROY PORTER 131

J. K. Aronson. *An Account of the Foxglove and its Medical Uses, 1785–1985*
Reviewer. J WORTH ESTES 133

Ruth J. Abram (ed.). *"Send Us a Lady Physician" Women Doctors in America, 1835–1920.*
Reviewer: ELLEN MORE 134

F. Neil Johnson *The History of Lithium Therapy*
Reviewer THOMAS H JOBE 135

Renate Rissom *Fritz Lenz und die Rassenhygiene*
Reviewer. MICHAEL H KATER 136

Moritz Leisibach. *Das Medizinisch-chirurgische Institut in Zürich, 1782–1833.*
Peter Stadler. *Die Universität Zurich, 1933–1983. Festschrift zur 150-Jahr-Feier der Universität Zürich.*
Reviewer: JURGEN HERBST 137

A. McGehee Harvey and Susan L Abrams. *"For the Welfare of Mankind": The Commonwealth Fund and American Medicine.*
Reviewer DANIEL M FOX 139

Michael Bliss. *Banting: A Biography.*
Reviewer: LOIS N MAGNER 140

Thomas R. Cole and Sally A. Gadow (eds.) *What Does It Mean to Grow Old? Reflections from the Humanities*
Reviewer CAROLE HABER 141

Hilary Koprowski and Stanley A. Plotkin (eds). *World's Debt to Pasteur: Proceedings of a Centennial Symposium Commemorating the First Rabies Vaccination*
Reviewer: JEAN THÉODORIDÈS 142

Walter Sneader. *Drug Discovery The Evolution of Modern Medicines*
Reviewer: JOHN SWANN 143

Mario González-Ulloa (ed.) *The Creation of Aesthetic Plastic Surgery.*
Reviewer: SHARON ROMM 144

Bonnie Bullough, Vern L Bullough, Jane Garvey, and Karen Miller (comps). *Issues in Nursing. An Annotated Bibliography.*
Reviewer: JOAN E LYNAUGH 145

Book Notes 146

Contributors to this Number 154

Volume 61 • Number 1 • Spring 1987

Copyright © 1987 by The Johns Hopkins University Press

Manuscripts (typewritten, in duplicate, with text and footnotes double spaced), review copies of books, and correspondence relating to the publication of papers should be addressed to

The Editor
Bulletin of the History of Medicine
1900 E. Monument Street
Baltimore, Maryland 21205

Contributors of articles will receive 25 reprints without covers free of cost. An order form for additional reprints, giving the cost, is sent with the galley proof.

The *Bulletin* is published quarterly: March, June, September, December. One volume of at least 500 pages is published during the year.

The *Bulletin of the History of Medicine* is indexed and abstracted in *Biological Abstracts, Cambridge Scientific Abstracts, Chemical Abstracts, Current Contents, Excerpta Medica, Index Medicus, ISI/BioMed, Science Citation Index, Writings on American History, Historical Abstracts, Arts & Humanities Citation Index, International Bibliography of Periodical Literature,* and *International Bibliography of Book Reviews.*

Subscription prices: $41.00, institutions; $24.00, individuals. Subscribers in Canada and Mexico, add $2.75 postage; outside North America, add $6.50.

New subscriptions are entered to begin with the first issue of the current volume and should be sent to

The Johns Hopkins University Press
Journals Publishing Division
701 W. 40th St.
Baltimore, Maryland 21211

Second class postage paid at Baltimore, Maryland, and at additional mailing offices.

Claims for replacement of missing numbers must be received within 3 months (6 months in the case of foreign subscribers) following publication of the number.

Members of the American Association for the History of Medicine receive the *Bulletin* on payment of $35.00 annual dues, of which $19.00 is for a year's subscription. Do *not* send changes in address of members and application for membership to The Johns Hopkins University Press, but to the Secretary-Treasurer:

Dr. Edward C. Atwater
Dept. of Medicine
University of Rochester Medical Center
Rochester, New York 14642

All rights reserved. No portion of this journal may be reproduced by any process or technique, without the formal consent of the editors and publisher except copies of the article may be made for personal or internal use on the condition that the copier pay a fee of $1.00 per copy for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law through the:

Copyright Clearance Center, Inc.
21 Congress Street
Salem, Massachusetts 01970

This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.

Typeset and printed by The Sheridan Press, Hanover, Pennsylvania.

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984. ⊜™

SCARLET FEVER AND CONFINEMENT: THE EDWARDIAN DEBATE OVER ISOLATION HOSPITALS*

John M. Eyler

The British municipal hospital, usually as a fever or isolation hospital, appeared in numbers only toward the end of Victoria's reign. Such hospitals marked an important departure in health care policy Unlike their institutional alternatives that also treated the poor—the voluntary hospitals and the institutions of the Poor Law—the municipal hospitals, as institutions of prevention, sought to attract rather than to deter applications. Consequently, most isolation hospitals offered care that was not only free of cost, but also free of means tests, free of demands of deference, and free of the other intentional humiliations of nineteenth-century charity or welfare. Here, for the first time, publicly financed institutional health care was given without penalty, exclusively on the basis of need.[1] It was an important precedent, one not lost on Sidney and Beatrice Webb in their effort to dismantle the Poor Law.[2]

But it is in their role as agents of disease control rather than as forerunners of a public, universal system of hospital care that we are considering the municipal hospitals. The founding of isolation hospitals in place after place, in Britain and abroad, signals a change in public health, a shift in emphasis from public hygiene and environmental sanitation to what would later, in America, be called (rather grandiosely) "the new public health."[3] New in this strategy were a heightened awareness of the specific modes of disease transmission and a determination to prevent the spread of disease by controlling the sick individual and his excretions. Now personal services, including medical treatment and even hospitalization, might become public health implements of the first importance.

The architects of the British system of public health had long foreseen a need for hospitalization to prevent disease. The Sanitary Act of 1866 and the Public Health Act of 1875 gave sanitary or health authorities power to estab-

---

* This publication was supported in part by NIH Grant LMO3765 from the National Library of Medicine

[1] Brian Abel-Smith, *The Hospitals, 1800–1948 A Study in Social Administration in England and Wales* (Cambridge, Massachusetts Harvard University Press, 1964), pp 125–27

[2] See, for example, their popularization of the medical aspects of *The Minority Report of the Royal Commission on the Poor Laws and Relief of Distress* Sidney and Beatrice Webb, *The State and the Doctor* (London Longmans, Green, 1910), pp 154–61 and 211–61

[3] Hibbert Winslow Hill, *The New Public Health* (New York Macmillan, 1916)

Bull Hist Med 1987, *61* 1–24

lish public isolation hospitals.[4] Successive medical officers at the central health authority (the Local Government Board, LGB) urged local authorities to use this power and provided suggestions and model hospital plans.[5] But few towns acted before 1890.[6] By 1891, only about 400 of the 1,510 provincial sanitary authorities had any means of isolating infectious diseases, and fewer by far relied on permanent isolation or infectious disease hospitals. A survey conducted for the British Medical Association in 1893 obtained information on a mere twenty-eight infectious disease hospitals in provincial towns, and only eleven of these were large enough to meet or come close to the standard of ten beds per ten thousand population which the authors of the survey considered a safe minimum accommodation.[7] More adequate provision for London appeared after the creation of the Metropolitan Asylums Board in 1867.[8] While the board's isolation hospitals were technically Poor Law facilities, the board was independent of the Poor Law guardians, and its hospitals functioned in many respects like the municipal hospitals elsewhere But the period of greatest expansion, the "rush into bricks and mortar," as one critic labeled it,[9] was between 1890 and the First World War. Provincial towns founded new hospitals or rebuilt what had previously been minimal isolation stations. County councils received authority in 1893 to provide similar hospitals for less populous areas.[10] By 1913, including the institutions of the Metropolitan Asylums Board, there were more than thirty-nine thousand beds in English and Welsh fever, smallpox, and port isolation hospitals.[11] The scale of the public isolation hospital system now rivaled that of the voluntary hospitals, which had a capacity of slightly more than forty-three thousand beds.

The timing of this expansion is no mystery. Health authorities were just beginning to obtain information on individual cases of infectious disease. While a few towns had earlier gained, through private bills, the power to require medical practitioners and heads of households to inform the local Medical Officer of Health (MOH) when an infectious case came to their notice, it was not until 1889 that Parliament passed general adoptive legislation making notification a local option. The Infectious Disease (Notification) Act of that year[12] provided that in London and all other jurisdictions adopting the act, the following diseases were notifiable: smallpox, Asiatic cholera, diphtheria, erysipelas, scarlet fever, typhoid or enteric fever, typhus, relapsing fever, continued fever, and puerperal fever. Fines could be imposed for failure to comply. Ten years later, the system of compulsory notification was extended to all of England and Wales.[13] Notification permitted the local health authority to direct its activities toward sick individuals. Home visitation, household disinfection, and isolation followed. Since many infectious cases, and perhaps most of those in working-class families, could not be adequately isolated in their own homes, the new preventive strategy provided a strong incentive for health authorities to turn to hospital isolation.

---

[4] Great Britain, *Statutes at Large,* 29 & 30 Vict, chap 90 (1866), sec 37, and *Ibid,* 38 & 39 Vict, chap 55 (1875), sec 131–32

[5] See the similar memoranda issued by Edward C Seaton, George Buchanan, and Richard Thorne Thorne in *Annual Report of the Medical Officer of the Local Government Board,* 1876, *6* 312–17, *ibid,* 1887, *17* 199–201, and *ibid,* 1894–95, *24* 195–98

[6] Abel-Smith, *Hospitals, 1800–1948,* pp 127–29, and Anthony S Wohl, *Endangered Lives Public Health in Victorian Britain* (Cambridge, Massachusetts Harvard University Press, 1983), pp 137–39

[7] "An investigation of infectious hospital accommodation and administration in England," *Brit Med J,* 1893, *1* 185–87

[8] Abel-Smith, *Hospitals, 1800–1948,* pp 77–82 and 119–27, and Gwendoline M Ayers, *England's First State Hospitals and the Metropolitan Asylums Board, 1867–1930* (Berkeley and Los Angeles University of California Press, 1971)

[9] Edward Dean Marriott, "The passing of the isolation hospital," *Sanitary Record,* 1900, n s, *26* 71

[10] This authority was granted by the Isolation Hospitals Act, 1893 Great Britain, *Public General Statues,* 56 & 57 Vict, chap 68 For the sake of convenience, I have included the isolation hospitals provided by county councils in my generalization about municipal hospitals

[11] Abel-Smith, *Hospitals, 1800–1948,* p 128, n 1; and Robert Pinker, *English Hospital Statistics, 1861–1938* (London Heinemann, 1966), p 49

It is no wonder, then, that the municipal hospital soon came to occupy a central position in local health work. Such facilities were expensive to build, requiring, despite low-cost government loans, a major indebtedness, and the cost of running and maintaining its hospital was often the largest single item in a health department's budget.[14] Sometimes the new hospital permitted the health department to make other innovations. For example, in Brighton, the first phase of construction that replaced a temporary isolation facility with a large, modern, permanent hospital permitted the local Medical Officer of Health to secure a municipal hygienic laboratory and the appointment of a resident physician to the hospital who doubled as his Assistant Medical Officer of Health.[15] This Medical Officer of Health and many of his colleagues elsewhere had campaigned long and hard to gain local approval of hospital construction.[16] Expectations were high that the new hospital would significantly improve the health of the community.

Before long, however, doubts appeared. It was the hospital isolation of scarlet fever which caused the most uncertainty, and, significantly, scarlet fever accounted in most of these years for more admissions than any other disease.[17] Cross-infection was known to occur in the isolation hospitals with scarlet fever as with other diseases. In fact, one cynical Edwardian definition of an isolation hospital labeled it a "place where a person goes in with one infectious disease and catches all the rest."[18] The management of some of these hospitals did little to reduce this risk Cases sometimes could not be adequately segregated, and the experts tailored their advice to account for this inevitability. Consider, for example, the recommendation concerning the treatment of scarlet fever made by F. Foord Caiger in the first edition of Thomas Clifford Allbutt's *A System of Medicine.*[19] Caiger recognized that the dread "post-scarlatinal diphtheria" occurred more frequently in hospital than in home treatment, but he saw no reason why cases of diphtheria could not be safely treated in the same wards as scarlet fever if there were abundant ventilation and adequate floor space per bed The hazards of knowingly mixing different infections in the same ward become alarmingly clear when we learn in Edwardian medical discussions of hospital reform how little care had been taken in the recent past to prevent contact infection.[20] In some hospitals a single towel, washcloth, or tongue depressor went round an entire ward on a morning's routine. Ignorance, carelessness, and penury all contributed to the risk of hospital confinement.

---

[12] Great Britain, *Statutes at Large*, 52 & 53 Vict., chap. 72 (1889). For information on the pace at which compulsory notification was adopted, see Wohl, *Endangered Lives*, pp. 135–37.

[13] Infectious Disease (Notification) Extension Act, 1899. Great Britain, *Public General Statutes*, 62 & 63 Vict., chap. 8.

[14] A. Mearns Fraser, "Is the hospital isolation of scarlet fever worth while?" *Pub. Health*, 1903–4, *16* 208.

[15] Brighton, Proceedings of the Sanitary Committee, 10 June 1897, *14* 420–25. These are manuscript records housed in the East Sussex Record Office, Lewes, and are hereafter cited as Brighton, Proc. San. Comm. See also Brighton, *Proceedings of the Town Council, Proceedings of Committees*, 17 June 1897, pp. 27–29.

[16] In June 1892, Brighton's Medical Officer of Health and Borough Surveyor began a campaign for a new hospital to replace the crude structure erected to meet a smallpox epidemic in 1881. Brighton, Proc. San. Comm., 9 June 1892, *9* 234–35.

[17] This was certainly the case for Brighton, as successive annual reports of its Medical Officer of Health show. See Brighton, *Annual Report on the Health, Sanitary Condition, etc., of the County Borough of Brighton*, hereafter cited as Brighton, *Ann. Rep. MOH*.

At the turn of the century, the death of a child who had been admitted with scarlet fever but who had died from diphtheria apparently contracted in the institution might have been defined as the price of protecting the community, if the chain of infection in the community had invariably stopped at the isolation hospital. But it was precisely on this point that the strongest doubts arose. Cases of scarlet fever and diphtheria occasionally broke out in houses soon after the return from the isolation hospital of a family member recently treated there for either of these diseases. Such return cases, as they were called, could more easily be controlled for diphtheria with the adoption of throat culture techniques, but they continued to occur—indeed, became more frequent—with scarlet fever as the scale of institutional isolation grew. Superintendents of isolation hospitals and Medical Officers of Health were, of course, aware that return cases occurred, but it was public attention that kindled special professional interest. In 1894 the Medical Department of the Local Government Board conducted an extended investigation of a complaint lodged by the Beckenham Urban Authority against the Bromley and Beckenham Joint Hospital for return cases caused by alleged hospital mismanagement.[21] There were also lawsuits. The public health world was startled when a Birmingham family successfully sued the mayor and Corporation of Birmingham for damages when it experienced several return cases, one of them fatal.[22] By the early twentieth century, some sanitary authorities were trying to limit their liability for such suits by issuing warnings and claims that they could not be held responsible for subsequent cases. This strategy was not always effective in court.[23]

---

[18] Fraser, "Is the hospital isolation of scarlet fever worth while?" p 211

[19] F Foord Caiger, "Scarlet Fever," in *A System of Medicine,* ed Thomas Clifford Allbutt, 2 vols (London and New York. Macmillan, 1900), 2 159–60

[20] See, for example, William Scatterty, "Hospital isolation," *Pub Health,* 1904–5, *17* 361

[21] T W Thompson, "Report on re-invasion by scarlatina of households to which persons from Bromley and Beckenham Joint Hospital had returned on their recovery from that disease," *Annual Rep Med Officer of the LGB,* 1894–95, *24* 103–34 Thompson soon published the article "Considerations in respect to 'return' cases of scarlatina," *Trans Epidemiol Soc. London,* 1895–96, n s, *15* 1–16

At the heart of the matter was deep ignorance of the etiology of scarlet fever.[24] The disease was known to be highly contagious, but its cause, by the 1890s presumed to be a microbe, was unknown. It is true that streptococci had been isolated from scarlet fever patients, but until the early 1920s, especially with the work of George and Gladys Dick, the relationship between streptococci and scarlet fever was most uncertain.[25] In Britain, some work suggestive of that link had even been sponsored by the Local Government Board. In 1885 two LGB staff members, William H. Power and Emanuel Klein, traced an outbreak of human scarlet fever through the milk supply to diseased cattle on a farm in Hendon and found streptococci to be the responsible organism.[26] In the 1890s Klein and his associates undertook a series of pathological and bacteriological studies of scarlet fever in which streptococci were isolated in cultures taken from the tonsils and nasal discharge of patients.[27] But their contemporaries found such work far from conclusive.[28] Other microorganisms had been named as the cause, and since the differences in types of streptococci were not yet appreciated, it was hard for them to accept that an organism as common as the streptococcus could be the cause of a specific disease such as scarlet fever. That no routine attempts to culture streptococci from patients were apparently made in these isolation hospitals shows how little conviction Klein's work carried and how poorly bacteriology was thus far integrated into public health work. Hospital reformers also failed to suggest in these years the use of routine throat cultures.

---

[22] The case was *Kegan* v *The Mayor and Corporation of Birmingham*, 1896 See *Pub Health*, 1895–96, *8* 244–45 For MOH discussion of the case, see J Wright Mason, "Secondary and return cases of scarlatina," *ibid*, 1897–98, *10* 221; and C Killick Millard, "The etiology of 'return cases' of scarlet fever," *Brit Med J*, 1898, *2* 614

[23] See a short notice on this subject in the *Lancet*, 1903, *2* 499 For an example of a warning to parents of recently discharged scarlet fever patients from Nottingham's Bagthorpe Hospital, see *ibid*, 1900, *2* 1759

[24] For examples of the understanding of and recommendations for dealing with scarlet fever, see Caiger, "Scarlet Fever," pp 122–78, Arthur Newsholme, *Hygiene A Manual of Personal and Public Health* (London, 1884), pp 365–67, and A. Wynter Blyth, *A Manual of Public Health* (London, 1890), pp 380–95

[25] For a concise history of the development of knowledge of scarlet fever, see Arthur L. Bloomfield, *A Bibliography of Internal Medicine Communicable Diseases* (Chicago University of Chicago Press, 1958), pp 108–26

[26] For the work of Klein and Power, see *Annual Rep Med Officer of the LGB*, 1885, *15* 73–89 and 90–99, and "On the relation between milk-scarlatina in the human subject, and disease in the cow," *Practitioner*, 1886, *37* 61–80 and 143–60 For recent historical discussion of this topic, see Leonard G Wilson, "The historical riddle of milk-borne scarlet fever," *Bull Hist Med*, 1986, *60* 321–42

[27] *Annual Rep Med Officer of the LGB*, 1896–97, *26* 263–66, *ibid*, 1897–98, *27* 326–34, *ibid*, 1898–99, *28* 480–97, *ibid*, 1899–1900, *29* 385–457, and *ibid*, 1900–1901, *30* 353–404 Klein's collaborator discussed the implications of this work for the prevention of return cases Mervyn H Gordon, "The cause of return cases of scarlet fever," *Brit Med J*, 1902, *2* 445–46

[28] See, for example, Caiger, "Scarlet Fever," pp 162–64, Blyth, *Manual*, pp 391–95, and Harold Swithinbank and George Newman, *Bacteriology of Milk* (London John Murray, 1903), pp 282–89

Cases of scarlet fever continued to be diagnosed primarily from clinical signs and symptoms, especially from the characteristic rash and subsequent peeling skin. There was, of course, no way to be certain when a scarlet fever convalescent ceased to be infectious. Physicians recognized that cases of scarlet fever varied enormously in severity, and public health authorities warned that it was the mild or atypical cases of scarlet fever, the ones most likely to be missed or to go unreported, that made control of scarlet fever difficult.[29] But the authorities' important warning could not be effectively implemented, since no one knew what relationship, if any, existed between cases of scarlet fever and other cases displaying some of the symptoms of that disease (sore throat, headache, malaise) but without the telltale rash. With the benefit of hindsight, we can see that health authorities at the turn of the twentieth century probably knew of only a fraction of the total cases of streptococcal infection in their communities, and that under these circumstances a control strategy based exclusively on the isolation of overt cases of scarlet fever was doomed to failure

Health authorities tried a series of makeshift methods to control secondary or return cases. Among the most obvious was lengthening the period of isolation and hoping that the contagious principle, whatever it was, would vanish before the patient was discharged. By the late 1890s, average hospital confinements varied from thirty-nine to sixty-five days, and at least one medical author suggested that this period be lengthened to between fifty-six and ninety-one days.[30] Because flakes of peeling skin had long been thought to be the vehicle for contagion, patients' bodies were frequently kept oiled with a mixture of olive oil and carbolic acid (phenol),[31] and confinement continued until the skin stopped peeling. In the 1890s expert opinion grew skeptical of the role of skin in the transmission of scarlet fever and attached more importance to the septic complications of the disease, such as purulent discharges from the nose or ears, which were common in the pre-antibiotic era [32] Isolation hospitals turned to chemical disinfectants, using solutions of formalin or lysol to irrigate the ears and noses of scarlet fever convalescents As added protection against return cases, the more spacious and liberally funded hospitals separated convalescent from acute cases and instituted elaborate "bathing out" procedures, sometimes conducted in separate discharge lodges.[33] In the "bathing out" procedure, patients were separated from others some time before discharge and, at the time of discharge, were given a final bath, subjected to further irrigation, dressed in clean clothing brought directly from home, and sent immediately off hospital property

---

[29] Blyth, *Manual*, p 380, and Arthur Newsholme, *The Role of "Missed" Cases in the Spread of Infectious Diseases* (London and Manchester Sherratt and Hughes, 1904)

[30] For a summary of these practices and recommendations, see Mason, "Secondary and return cases," pp 220–21

[31] See, for example, Newsholme, *Hygiene*, p 366

[32] Millard, "Etiology of 'return cases,'" pp 616–17, and Arthur Newsholme, "Protracted and recrudescent infection in diphtheria and scarlet fever," *Med-Chir Trans*, 1904, *87* 550–63 and 580–83, or in *Pub Health*, 1903–4, *16* 691–701 and 714–16

[33] For descriptions of these procedures in Brighton and in Birmingham, see Newsholme, "Protracted and recrudescent infection," *Med-Chir Trans*, pp 551 and 555, or in *Pub Health*, pp 692 and 695 See also Brighton, *Ann Rep MOH*, 1895, p 44, Brighton, *Ann Rep MOH*, 1901, p 25, and Millard, "Etiology of 'return cases,'" p 616

But return cases still occurred. It was in this atmosphere of heightened professional interest and frustration that the effectiveness of and justification for isolation hospitals were challenged. Scarlet fever provided the hospitals' enemies with their easiest target. Among the most vociferous of these critics was Edward Dean Marriott, a general practitioner, district medical officer, and public vaccinator from Nottingham. Marriott's criticism burst on the scene in 1900 in a pamphlet, in hot-tempered articles in the *Sanitary Record,* and in a lengthy and quarrelsome exchange of letters in the *Lancet* initiated by the editors' critical notice of his pamphlet.[34] Marriott made no secret of the basis for his hostility· the "un-English system of compulsory notification" had led to the "squandering ... of public money" for the creation of "pest houses miscalled isolation hospitals."[35] The system of compulsory notification and isolation brought with it "the interference with the liberty of the subject, the invasion of the sacred privacy of the home, and the disturbance of natural ties."[36] Because of the great risk of secondary infection, a risk that he claimed, astonishingly, did not exist with home treatment of scarlet fever, no local authority had the "moral right" to compel anyone to enter such a hospital. "It is no light thing that, under the iniquitous Act of 1889 [the Infectious Disease (Notification) Act], a child whose life is in no jeopardy may be taken forcibly from its home and its life made to pay forfeit for the meddlesome interference of the Sanitary Authority."[37] While Marriott mentioned specifically the act of 1889, it was probably its extension to the entire kingdom ten years later which precipitated his attack.

Not only did the newly implemented strategy of notification and isolation entail an unwarranted extension of public authority into the private sphere, but, according to Marriott, it also represented a betrayal of older and proven methods of prevention. It was the sanitarian and the sanitary engineer, not the "compulsionists" and their "aggregation method," who deserved credit for the fall in mortality from notifiable diseases and from diseases like tuberculosis which were not notifiable.[38] Significantly, he opposed not only the hospital isolation of the diseases that were notifiable at that time, but also, and in particular, the extension, then under discussion, of the system to pulmonary tuberculosis.[39] Such extension would mean that tuberculosis patients would be handed over to the "limbo of state captivity" as in Germany, where, Marriott asserted, the tuberculosis death rate had doubled in the preceding fifty years, while in England it had steadily declined.[40]

---

[34] Ed[ward] Dean Marriott, "Scarlet fever—The case against hospital isolation," *Sanitary Record,* 1900, n s , *25* 118–19, *idem,* "The passing of the isolation hospital," *ibid ,* 1900, n s , *26* 71, 85, 124, 157–58, 175–76, and 199–200 See also *Lancet,* 1900, *2*· 1661–62, 1759–60, 1835–36, 1921–22, and *Lancet,* 1901, *1* 135, 357, 412–13, 662–63 I have not been able to locate a copy of Marriott's pamphlet, but I am sure his position is made abundantly clear through these journal articles

[35] *Sanitary Record,* 1900, n s , *26* 85, *Lancet,* 1900, *2* 1922, *Lancet,* 1901, *1* 357

[36] *Sanitary Record,* 1900, n s , *26* 124

[37] *Ibid.,* p 199

[38] *Ibid ,* pp 71 and 85

Marriott's polemics remind us how ingrained and strong the Victorian fear of public regulation of personal behavior was, even where the prevention of dread disease was concerned Early in the nineteenth century, liberal slogans had been effectively raised against quarantine.[41] In the second half of the century, resentment of state interference with personal freedom was an important component in the organized opposition to compulsory smallpox vaccination and to the anti-venereal disease measures of the harsh Contagious Diseases Acts.[42] The mid-Victorians were willing to promote public health by environmental sanitation, but compulsory state interference with individual behavior or the entrance of public authorities into the domestic sphere was anathema. Thus, when the logic of recent scientific discovery suggested mass institutional isolation of infectious disease, the suggestion inherited a legacy of anticontagionist counterarguments and liberal political objections. While this legacy was losing strength by 1900, it was by no means dead.

Marriott produced statistics designed to prove that isolation hospitals had been a failure. Not only had they failed to stamp out scarlet fever, but their operation had served to make the disease more of a public health problem by producing in the community severe return cases. The number of return cases was, Marriott charged, much larger than public authorities acknowledged, since a new case was counted as a return case only if it occurred in the home of a former hospital patient within three weeks of that patient's return.[43] The records of return cases took no notice of the persons former hospital patients might infect at school and in the neighborhood.

Marriott's statistical demonstrations were naive in the extreme. One merely listed the number of cases of scarlet fever notified each year, or, more often, in only select years, in several British towns.[44] The reader was invited to observe that the number of notified cases increased in the early years after notification began, and that after a decade or two of notification, there was no diminution of reported cases The disease, in other words, had not been stamped out. Marriott also listed the annual number of notified cases and the percentage of those cases moved to the isolation hospital for thirty British towns, from the time notification began until 1898 or 1899.[45] The experience of two towns that had adopted notification early, Nottingham and Bolton, was especially significant.[46] In Nottingham, the number of notified cases seemed to increase as the percentage of cases isolated increased Never in the 1890s, when 70 to 90 percent of notified cases were isolated, were the numbers of notified cases as low as they were in the mid-1880s, when the new hospital was isolating only 12 to 15 percent of these cases. Bolton was unusual in that it had six years of compulsory notification before its isolation hospital opened. Following the opening of the hospital, the number of notified cases increased. It seemed, Marriott claimed, that the more rigorously one applied hospital isolation, the more serious scarlet fever became.

---

[39] *Ibid*, p 85 See also Marriott's letters to the editor, *Lancet*, 1901, *2* 1843–44, and *Lancet*, 1902, *1* 258

[40] *Sanitary Record*, 1900, n s, *26* 85

[41] Erwin H Ackerknecht, "Anticontagionism between 1821 and 1867," *Bull Hist Med*, 1948, *22*. 562–93, Charles MacLean, *Evils of Quarantine Laws, and Non-existence of Pestilential Contagion Deduced from the Phaenomena of the Plague of the Levant, the Yellow Fever of Spain, and the Cholera Morbus of Asia* (London, 1824), [Thomas Southwood Smith], "Contagion and sanitary laws," *Westminster Rev*, 1825, *3* 134–67, and *idem*, "Plague—typhus fever—quarantine," *Westminster Rev*, 1825, *3* 499–530

[42] R[oy] M. MacLeod, "Law, medicine and public opinion the resistance to compulsory health legislation, 1870–1907," *Pub Law*, Summer and Autumn, 1967, pp 107–28 and 189–211, and Kellow Chesney, *The Anti-Society An Account of the Victorian Underworld* (Boston Gambit, 1970), pp 354–64

[43] *Lancet*, 1900, *2* 1922, and *Sanitary Record*, 1900, n s, *26* 199

[44] *Sanitary Record*, 1900, n s, *25* 118–19, and *Lancet*, 1900, *2* 1759

It was not difficult to challenge Marriott's statistics. A.J. Tonkin of the Monsall Fever Hospital, Manchester, took on the task in the *Lancet*.[47] He argued that Marriott had merely exploited coincidental circumstances that accompanied the regular wavelike variation in incidence of scarlet fever in large communities. Nottingham and Bolton had simply had the misfortune of opening their hospitals when the scarlet fever cycle was at a minimum. If the hospitals had been founded ten years later, their openings would have been followed by a decrease in the number of notified cases. Tonkin challenged Marriott to explain why, if hospital isolation increased scarlet fever in the community, the largest fall in incidence in Nottingham followed the year (1895) in which the highest percentage of cases was isolated. Why had the year of the greatest increase in incidence followed a year (1898) in which a lower percentage of cases was isolated? If the opening of the hospital in Bolton explained the rise in scarlet fever between 1885 and 1889, how could Marriott account for the fall in incidence in the subsequent five years, despite the continued operation of the hospital? Could Marriott prove that the incidence of scarlet fever in these communities would have been lower if these cases had not been isolated? Tonkin did not add what was certainly well known to Medical Officers of Health, that in its early years notification was far from complete, and that it took some years to secure the cooperation of medical practitioners and patients. There was, thus, no way to be sure whether a rise in the number of notified cases in the first years of notification represented a real increase in incidence or merely greater compliance.

For his part, Marriott denied that scarlet fever exhibited cycles of incidence and steadfastly stood by his demand that the supporters of hospital isolation explain why, if their method was effective, such vigorous isolation of cases had not eradicated the disease.[48] He was ferocious in language and tenacious in argument, but he was the sort of critic who could be ignored. He shifted ground frequently to gain an advantage and ignored inconvenient challenges from critics. When his statistics for scarlet fever failed to be persuasive, he promised even more forceful proof of the dangers of isolation hospitals from the history of diphtheria.[49] His libertarian motives were transparent, and his statistics would not bear examination. While the editors of the *Lancet* were worried about the influence critics like Marriott might have on the councilors and aldermen who served on local sanitary committees, to their professional readers they could pass Marriott off as a cranky incompetent.[50]

---

[45] *Sanitary Record*, 1900, n s , *26* 157–58 and 175
[46] *Ibid*, p 175, and *Lancet*, 1900, *2*· 1759–60
[47] *Lancet*, 1900, *2* 1835–36, and *ibid*, 1901, *1* 135

A much more serious challenge came from C. Killick Millard. Unlike Marriott, Millard was not an outsider. He held a series of appointments as Medical Officer of Health and as superintendent to isolation hospitals at Birmingham, Burton-on-Trent, and Leicester. He had also published, in 1898, a valuable article on the etiology of return cases based on the experience of 4,810 scarlet fever patients discharged from Birmingham City Hospital during the preceding two and a half years.[51] This article discussed the frequency of return cases and the circumstances surrounding their appearance but did not challenge the wisdom of hospital isolation. Then, in 1901 and 1902, he offered an extensive statistical critique of the effectiveness of isolation hospitals in combating scarlet fever[52] His data were drawn from the responses of 113 towns to a questionnaire he had sent to most towns in England and Wales and from the mortality statistics of the General Register Office Millard's critique compared towns or groups of towns to show that those which isolated higher percentages of their notified cases of scarlet fever had morbidity, mortality, and case fatality rates for the whole population from that disease as high or higher than those towns which isolated lower percentages of cases or did not use hospital isolation at all. Figures 1 and 2 are reproduced from his text and demonstrate his approach.

Millard pointed out the poor showing of towns like Warrington, which had employed hospital isolation more extensively than most, and he drew special attention to the contrasting experience of the Lancashire towns Bolton and Preston (fig. 2). His figures suggested that Bolton, which isolated

---

[48] *Ibid*, 1900, *2* 1921–22, and *ibid*, 1901, *1* 357

[49] *Ibid*, 1901, *1* 663

[50] *Ibid*, 1900, *2* 1661–62, and *ibid*, 1901, *1* 412–13 and 663

[51] Millard, "Etiology of 'return cases,'" pp 614–18 Millard later published another paper with the same title which was more overtly critical of hospitalization, see *Brit Med J*, 1902, *2* 441–45

[52] C. Killick Millard, "The influence of hospital isolation in scarlet fever: an appeal to statistics," *Pub Health*, 1900–1901, *13* 462–93, and *idem*, "The hospital isolation of scarlet fever: some points of uncertainty," *ibid*, 1901–2, *14* 285–94 The former is the more important. The latter reiterates points raised earlier

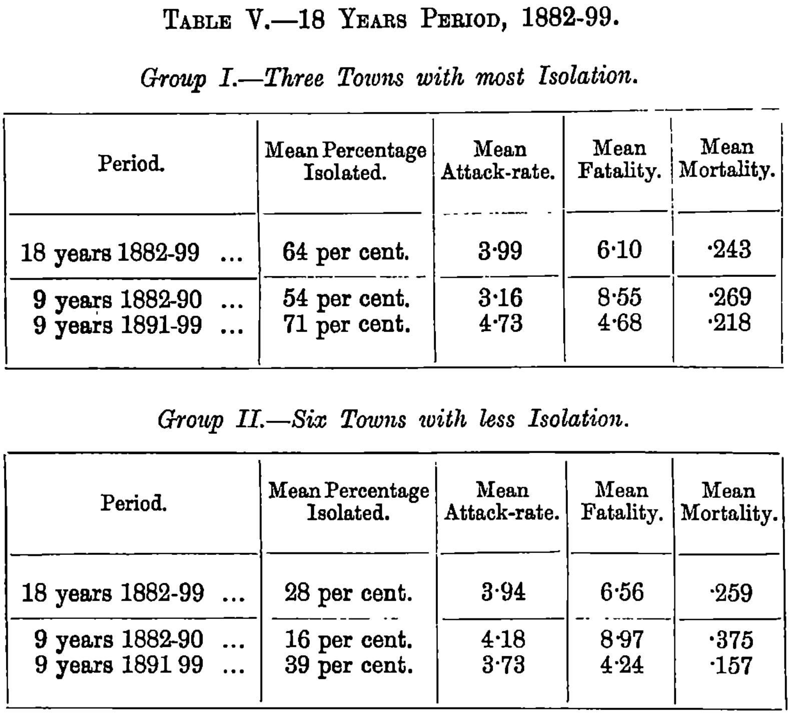


TABLE V.—18 YEARS PERIOD, 1882-99.

Group I.—Three Towns with most Isolation.

Period.	Mean Percentage Isolated.	Mean Attack-rate.	Mean Fatality.	Mean Mortality.
18 years 1882-99 ...	64 per cent.	3·99	6·10	·243
9 years 1882-90 ...	54 per cent.	3·16	8·55	·269
9 years 1891-99 ...	71 per cent.	4·73	4·68	·218

Group II.—Six Towns with less Isolation.

Period.	Mean Percentage Isolated.	Mean Attack-rate.	Mean Fatality.	Mean Mortality.
18 years 1882-99 ...	28 per cent.	3·94	6·56	·259
9 years 1882-90 ...	16 per cent.	4·18	8·97	·375
9 years 1891 99 ...	39 per cent.	3·73	4·24	·157

Fig 1 Experience with scarlet fever of towns making much use and towns making little use of hospital isolation. C. Killick Millard, "The influence of hospital isolation in scarlet fever an appeal to statistics," *Pub Health,* 1900–1901, *13* 478

one-third of its cases, had a worse experience with scarlet fever than Preston, which almost never employed hospital isolation.

Millard's articles also cited two exceptional episodes which occurred in 1892 during a smallpox epidemic.[53] In order to isolate smallpox cases in its municipal hospital, Oldham ceased to admit scarlet fever patients during all of 1892 and for most of 1893. Leicester went even further, actually discharging 114 scarlet fever patients in all stages of the disease and closing the hospital to scarlet fever until 1894 In Oldham, the years 1892, 1893, and 1894 saw the lowest incidence of that disease of any period of three consecutive years during the twenty years notification had been in force. It was true that Leicester experienced a scarlet fever epidemic in 1893, but Millard argued that the outbreak would have occurred anyway. Most striking was the fact that no return cases occurred in Leicester following the early discharge of those 114 scarlet fever patients.

Millard concluded that hospital isolation had not reduced the prevalence or the fatality of scarlet fever, and that the fatality of the disease had

---

[53] Millard, "Influence of hospital isolation," p 476, *idem,* "Hospital isolation of scarlet fever," pp 289–91

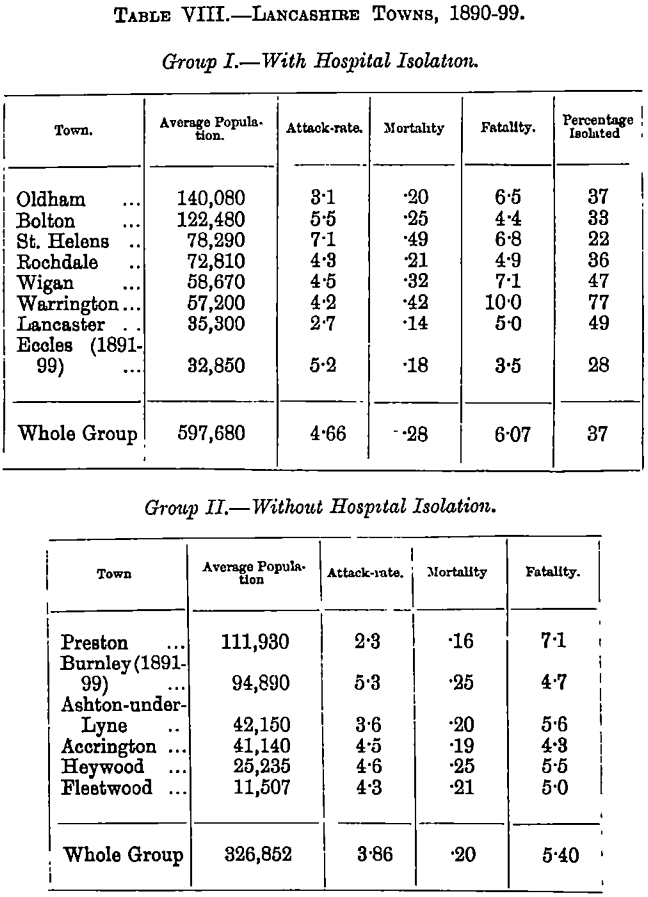


TABLE VIII.—LANCASHIRE TOWNS, 1890-99.

Group I.—With Hospital Isolation.

Town.	Average Population.	Attack-rate.	Mortality	Fatality.	Percentage Isolated
Oldham ...	140,080	3·1	·20	6·5	37
Bolton ...	122,480	5·5	·25	4·4	33
St. Helens ..	78,290	7·1	·49	6·8	22
Rochdale ..	72,810	4·3	·21	4·9	36
Wigan ...	58,670	4·5	·32	7·1	47
Warrington...	57,200	4·2	·42	10·0	77
Lancaster . .	35,300	2·7	·14	5·0	49
Eccles (1891-99) ...	32,850	5·2	·18	3·5	28
Whole Group	597,680	4·66	·28	6·07	37

Group II.—Without Hospital Isolation.

Town	Average Population	Attack-rate.	Mortality	Fatality.
Preston ...	111,930	2·3	·16	7·1
Burnley (1891-99) ...	94,890	5·3	·25	4·7
Ashton-under-Lyne ..	42,150	3·6	·20	5·6
Accrington ...	41,140	4·5	·19	4·3
Heywood ...	25,235	4·6	·25	5·5
Fleetwood ...	11,507	4·3	·21	5·0
Whole Group	326,852	3·86	·20	5·40

Fig 2 Experience with scarlet fever of towns using and towns not using hospital isolation C Killick Millard, "The influence of hospital isolation in scarlet fever an appeal to statistics," *Pub Health,* 1900–1901, *13* 484

fallen most in those large towns which did not practice hospital isolation.[54] He accounted for these results by reviving the old fear that hospital isolation was really "aggregation" of contagion and by restating that fear in modern form by claiming that in contemporary fever hospitals, a hospitalized strain of scarlet fever was produced which was more virulent, more infective, and more likely to cause return or secondary cases. Millard's cases certainly rested on more extensive statistical arguments than did Marriott's. Millard was undoubtedly more discreet than Marriott about his political motives, his opposition to compulsion, and his preference for sanitation, but he was no less intent on dismantling the emerging system of hospital isolation.[55] He called for an investigation of the influence of isolation hospitals and recommended that in the meantime new hospital construction be halted[56] It is quite clear that both sides in this debate had an eye on the opinions and policies of the laymen who made up the local sanitary authorities. Millard's critics acknowledged fearing his influence on local authorities.[57]

---

[54] Millard, "Influence of hospital isolation," p 487

Initially Millard's colleagues responded with hostility to his contentions.[58] Some objected to his evidence or arguments. Medical Officers of Health like Edward Walford of Cardiff claimed that Millard's statistics misrepresented the experience of their towns.[59] For the decade 1890–99, Millard included Cardiff among towns with a low rate of isolation and a low attack rate and compared its group to a group of towns which isolated at a higher rate but also experienced a higher rate of attack[60] For each group, but not for individual towns, Millard also gave figures for five-year intervals. 1890–94 and 1895–99. The implications from the table about Cardiff were all wrong, Walford insisted Its isolation rate for the entire decade was low because in the first two or three years it had made almost no use of hospitalization. As Cardiff began to institutionalize cases more systematically, its percentage of scarlet fever cases isolated jumped from 16 0 to 50.3 percent for the two half-decades, while its attack rate fell from 6.1 to 3.5 per thousand and its mortality rate dropped from 0.28 to 0.08 per thousand. Another respondent, William Scatterty, MOH of Keighley, Yorkshire, turned one of Millard's examples on its head and asked how Millard could claim that hospitals produced an especially infective and virulent strain of scarlet fever when the early discharge of 114 scarlet fever patients in Leicester resulted in no return cases.[61]

Millard's opponents raised more general objections to his use of statistics. The most extensive criticism of this sort was an article by James Robert Kaye, County Medical Officer for the West Riding of Yorkshire, which *Public Health* published as a companion piece to Millard's second article on hospital isolation.[62] We can use Kaye's piece to sample the methodological objections several authors offered. First criticized were the comparisons Millard drew. The towns compared frequently differed drastically in size and in socioeconomic character. To illustrate his point, Kaye demonstrated that the two groups of towns compared in figure 1 (Millard's Table V) differed significantly in domestic crowding, a circumstance that had an obvious bearing on the transmission of a disease like scarlet fever. The 1891 census showed that in the towns of Group I (the good isolators), 38 percent of households lived in one-, two-, or three-room tenements, whereas in the towns of Group II, only 17 percent of households lived in such crowded circumstances.

---

[55] See, for example, Millard's letter to the editor, *Lancet,* 1904, *2* 44

[56] *Pub Health,* 1901–2, *14* 502 and 564

[57] *Ibid*, 1900–1901, *13* 496 and 500, *ibid*, 1901–2, *14* 565 and 676, *ibid*, 1903–4, *16* 686, and *Lancet,* 1906, *2.* 1807 See also Francis E Fremantle, "The value of isolation hospitals," *Pub Health,* 1906, *19* 1

[58] For a flavor of the hostile reaction, see the discussion following the presentation of his two papers before the Incorporated Society of Medical Officers of Health, in *Pub Health,* 1900–1901, *13* 494–503, and *ibid*, 1901–2, *14* 502–9

[59] Edward Walford, "The influence of hospital isolation upon scarlet fever in Cardiff," *Pub Health,* 1903–4, *16* 676–86

[60] Millard, "Influence of hospital isolation," pp 479–80

[61] Scatterty, "Hospital isolation," p 359

[62] James Robert Kaye, "Scarlet fever how far do statistics prove or disprove the utility of hospital isolation?" *Pub Health,* 1901–2, *14* 449–64

The towns compared also differed greatly in the nature and consistency of notification and isolation. Halifax, included among the poor isolators in figure 1, isolated 5.9 percent of its cases in 1892 and 0.7 percent in 1893, but 68.2 percent in 1896 and 67.6 percent in 1899.[63] In 1893 Bradford, labeled a good isolator, isolated 15.8 percent of its notified cases, whereas Derby, labeled a poor isolator, isolated 38.9 percent. The significance of Millard's groupings of good and bad isolators is further called into question by Kaye's critique of figure 2 (Millard's Table VIII). None of the towns, Kaye asserted, could properly be called a good isolator. To illustrate the fallacies in Millard's statistics, Kaye singled out two towns to which Millard had drawn particular attention, Warrington (Group I) and Preston (Group II). Not only did these two towns differ significantly in housing and classroom space, but they applied notification and isolation in ways that belied the use Millard made of their statistics. Until 1901, Preston notified only the first case in a household. When, after Millard's statistical series ended, Preston began to register all cases, its attack rate jumped immediately from 4.4 to 15 4 per thousand.[64] It seemed as if towns that were poor isolators might also be poor notifiers, and that low rates of incidence might reflect poor local administration as readily as good health. Kaye's own investigation also showed that a town's recorded rate of isolation might be very misleading. In Warrington, notified cases of scarlet fever sometimes had to wait seven to fourteen days for admission to the hospital.

Finally, Millard's comparisons did not consider different towns in similar phases of their epidemic cycles. Kaye prepared the graph in figure 3 to show how Millard's comparison of two groups of towns in the years 1891 to 1899 (fig. 1) misleads. The experience of a town could be compared properly only to itself over time, but even when comparisons were made, less correctly, to the groups of towns in figure 1, conclusions that differed from Millard's were forthcoming.[65] The towns of both Group I and Group II had increased the percentages of the cases they isolated between the two nine-year periods under consideration. Concurrently, their case fatality and mortality rates had fallen. Kaye accounted for the rise in the attack rate in Group I by postulating an improved registration of cases and by noting an upward

[63] See Kaye's Table Vb in *ibid*, p. 453

[64] *Ibid*, pp 459–62

[65] *Ibid*, p 451

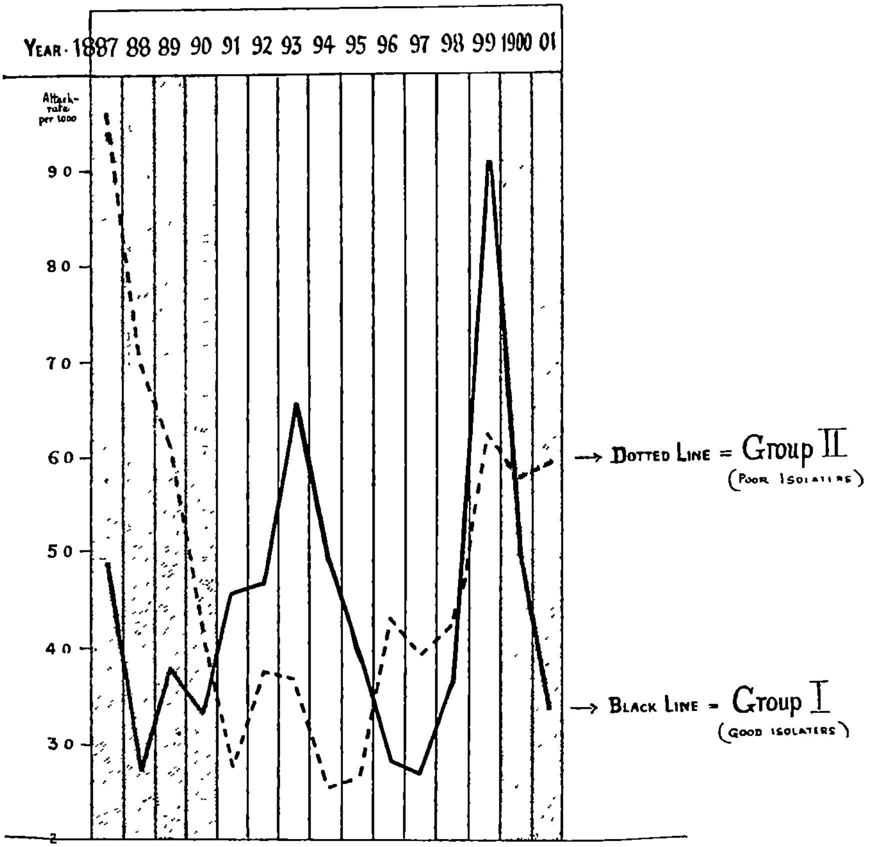


Fig 3. Scarlet fever attack rate in two groups of towns James Robert Kaye, "Scarlet fever how far do statistics prove or disprove the utility of hospital isolation?" *Pub. Health,* 1901–2, *14.* 452.

phase in the disease's epidemic cycle. No one, he claimed, believed that the isolation of a mere 75 percent of cases would eliminate such waves in incidence.

Thus, it was not difficult to poke holes in Millard's arguments. The editor of *Public Health* expressed the profession's initial reaction to this criticism when he labeled Millard's method "erroneous and misleading" and spoke of the "statistical worthlessness of his papers."[66] The March 1905 issue of *Public Health* was given over almost completely to the influence of isolation hospitals. Every author in that issue defended the hospitals, although some recommended changes in their management and some singled out Millard for specific criticism.[67] But it was one thing to point out

[66] *Ibid*, pp: 446 and 565

[67] *Pub Health,* 1904–5, *17* 343–98

fallacies in the work of critics like Marriott and Millard, and quite another to meet their challenge and offer proof that isolation hospitals helped control scarlet fever. A number of Medical Officers of Health tried to do this We might use Edward Walford again as an example. Walford's discussion of scarlet fever in Cardiff is more sophisticated than most, in that he acknowledged that scarlet fever occurs in communities in waves of incidence and that the attack rate of the age group most at risk (ages 0–15) may be more significant than the attack rate for the general population. In the course of his paper, Walford compared Cardiff's experience with scarlet fever in three epidemic years: 1884, 1892, and 1902.[68] Between 1884 and 1902, the town's annual isolation rate rose from 0 to 48 percent, whereas its annual mortality rate from scarlet fever, and the attack rate for both the whole population and the population under fifteen years of age, declined.

Arthur Newsholme built a more elaborate defense. He was then Medical Officer of Health at Brighton, Superintendent of the Brighton Sanatorium (the municipal isolation hospital then undergoing extensive reconstruction), and a well-known epidemiologist.[69] Newsholme had invested high hopes and a large share of his professional reputation in the success of hospital isolation, and he was sensitive to criticism like that of Millard. On several occasions he produced figures showing that, at least in Brighton, the case fatality rates for scarlet fever were lower in hospital treatment than in home treatment.[70] Both Marriott and Millard rejected this comparison.[71] Marriott argued that since the most serious cases were too ill to be moved to the hospital, such a comparison favored hospital treatment. Newsholme also tried to demonstrate that hospital isolation lessened the incidence of secondary cases. In his annual report as an MOH for 1900, he offered two such demonstrations.[72] First he calculated the rate of secondary cases occurring in households where a primary case was reported as a percentage of all cases treated at home and of all cases treated in the town's isolation hospital. His figures were 32.1 percent for home treatment and 6.2 percent for hospital treatment where the first case was removed before the appearance of another case Second, for 1899 and 1900, he computed secondary attack rates among those believed to be non-immune living in homes where scarlet fever was notified. He calculated that among non-immunes under the age of twenty, 32.5 percent experienced a secondary attack if the primary case in the same family had been removed to the sanatorium. For home treatment, that rate was 51.5 percent. Over the age of twenty, the chances of secondary cases occurring were more nearly equal, although hospital treatment still appeared favorable: 4.1 percent versus 5.1 percent.

---

[68] Walford, "Influence of hospital isolation," pp 682–83

[69] There is no scholarly study of Newsholme's life and work although I am now preparing one Newsholme's two autobiographical volumes are rather disappointing and read like glosses on his reprints See Arthur Newsholme, *Fifty Years in Public Health A Personal Narrative with Comments* (London George Allen and Unwin, 1935), and *idem, The Last Thirty Years in Public Health Recollections and Reflections on My Official and Post-Official Life* (London George Allen and Unwin, 1936)

[70] Newsholme, *Annual Report,* 1899, p 24, and *ibid*, 1900, p 22

[71] *Sanitary Record,* 1900, n s, *26* 176, and *Pub Health,* 1900–1901, *13* 473–74

[72] Newsholme, *Annual Report,* 1900, pp 18–21 These demonstrations were repeated in Arthur Newsholme, "The epidemiology of scarlet fever in relation to the utility of isolation hospitals," *Trans Epidemiol Soc London,* 1900–1901, n s, *20* 61–66

In his annual reports for 1901 and 1902, Newsholme repeated the second of these demonstrations.[73] It seems, however, that the data for 1901 would have yielded secondary attack rates considerably more favorable to home than to hospital treatment and so, for that year and the next, Newsholme did not publish annual figures but pooled a portion of the annual data with data from the previous two years to produce figures for three and four years and obtain results similar to those for the first two years. Hereafter the matter was allowed quietly to drop.

Newsholme must have been disappointed that statistics did not provide more conclusive proof of the value of hospital isolation. He explained why secondary attack rates failed to tell the full story.[74] The figures for hospital treatment usually included secondary cases from homes where the primary case had not been removed until after the secondary case or cases had appeared. The purpose of hospital isolation had, thus, been defeated. It was also true that the home-treated and hospital-treated cases were not strictly comparable. Patients treated at home were usually from more prosperous and less crowded houses. Hospital-treated patients were more often from poor families.

When statistics failed, Newsholme turned to other defenses. His clinical paper on return cases from the Brighton Sanatorium paid particular attention to the condition of other patients in the wards at the time the patients who later caused return cases were treated.[75] He was intent on showing in this paper that the hospital was not responsible for the protracted infection or the septic complications that sometimes occurred. The character of each case, he claimed, was determined even before it was admitted to the institution. Beyond this appeal to clinical experience, Newsholme resorted to what may best be called special pleading[76] Hospital isolation, he reminded his readers, had only been imperfectly tried Many cases were not institutionally isolated, and many more went undetected. Despite the best efforts of health authorities, some parents and medical practitioners remained uncooperative. There were, in short, many sources of infection over which no official control was exercised.

Newsholme also suggested that the critics posed impossible demands.

---

[73] Newsholme, *Annual Report*, 1901, pp 22–24, and *ibid*, 1902, pp 22–23

[74] *Ibid*, 1901, p 24

[75] Newsholme, "Protracted and recrudescent infection"

[76] For the argument that follows, see Newsholme, "Epidemiology of scarlet fever," pp 50–51, 60–61, 68–69, and *idem*, "The utility of isolation hospitals in diminishing the spread of scarlet fever Considered from an epidemiological standpoint," *J Hygiene*, 1901, *1* 148–52

No one could reasonably expect hospital isolation to prevent all outbreaks The best that could be hoped for was that the peaks of the epidemic cycles would be leveled out so that the disease was less socially and economically disruptive. Such a tempering of outbreaks would also mean that individual cases would occur at later ages, when case fatality was lower. Both effects, Newsholme argued, were already underway. The fact that scarlet fever continued to appear was no reason to reject isolation. No one, after all, called for the abolition of the fire brigade simply because there were still fires. Until more was learned about the natural history of scarlet fever or more effective or supplemental means of prevention were discovered, local authorities were duty-bound to apply the best knowledge and techniques available. Those were clearly isolation and disinfection.

Some Medical Officers of Health were soon led by their own experience to conclude that hospital isolation had not helped control scarlet fever, however useful it might be in the prevention of other diseases.[77] During the next few years, important groups, including the British Medical Association's Section on State Medicine and the Metropolitan Asylums Board, called on the Local Government Board to mount an official investigation.[78] In this changing climate of opinion, the defense of hospital isolation was altered. Statistics, published accounts of the period began to declare, were not capable of deciding the issue, but logic and analogy supported the wisdom of hospital isolation for scarlet fever.[79] Perhaps more interesting is the fact that defenders increasingly stressed the value of hospital isolation for social and economic convenience, irrespective of its utility in controlling scarlet fever.[80] With proper hospital isolation of the patient with scarlet fever, siblings might continue to attend school, other family members might continue to work at trades from which they would otherwise be temporarily barred, and families would be spared the expense and inconvenience of home care This defense was one of the most prominent in the Local Government Board's report of its investigation, published in 1912.[81]

Arthur Newsholme was by this time Medical Officer of the Local Government Board, and he endorsed the report's invocation of economy and convenience in the defense of isolation hospitals.[82] By the 1920s, after he left public office, Newsholme's change of mind became even more obvious. He now believed that the need for institutional isolation of scarlet fever had been exaggerated a generation earlier.[83] He conceded that isolation hospitals had not been effective in controlling the disease and defended their use in scarlet fever exclusively as treatment centers. It is quite likely that Newsholme's experience in Brighton in the first decade of the new century led him to this conclusion. Figures 4 and 5 are constructed from the data in the annual reports of the Medical Officer of Health of Brighton (Newsholme did not draw such curves). Figure 4 illustrates what all parties to this debate acknowledged: mortality from scarlet fever had begun to decline before direct measures were taken to control the disease. The more problematic issue is displayed in figure 5, a diagram of the town's annual morbidity rate and isolation rate. Brighton had a well-funded and active health department and employed hospital isolation extensively Before 1900, only Birmingham and Huddlesfield, of the thirty-three largest towns in Britain, had isolated a higher percentage of their scarlet fever cases.[84] Like several of the nation's prosperous seaside resorts, Brighton continued this active policy of isolation through the rest of the prewar period. Yet the routine isolation of between 80 and 90 percent of notified cases did not interrupt the waves in incidence of scarlet fever or prevent the peaks of those waves from reaching very high levels.

---

[77] See, for example, the discussion at the British Medical Association's annual meeting in 1905, *Brit Med J*, 1905, *2* 631–36 See also Fraser, "Is the hospital isolation of scarlet fever worth while?" pp 208–19

[78] *Lancet*, 1904, *2* 315–16, 624–25, *Brit Med J*, 1905, *2* 636, and *Lancet*, 1908, *1* 42 See also James Wheatley, "The desirability of an inquiry into the effect of hospital isolation, and the form an inquiry should take," *Pub Health*, 1903–4, *16* 355–59

[79] "The influence of hospital isolation in scarlet fever," *Pub Health*, 1901–2, *14* 447, Walford, "Influence of hospital isolation," p 676, W. G Willoughby, "The value of hospitals for scarlet fever," *Pub Health*, 1904–5, *17* 373–75, "The Annus Medicus 1906," *Lancet*, 1906, *2* 1807, and Fremantle, "Value of isolation hospitals," pp 1, 4, and 5–10

[80] Walford, "Influence of hospital isolation," pp 685–86, and John C Thresh, "The utility of isolation hospitals," *Lancet*, 1906, *1* 1060 One critic of the hospitals accused his opponents of abandoning the evidence of statistics and clinging to the theory of isolation Fraser, "Is the hospital isolation of scarlet fever worth while?" pp. 214–15

[81] H Franklin Parsons, *Report on Isolation Hospitals*, Supplement to *Annual Rep Med Officer of the LGB*, 1910–11, *40* 4–15

Regardless of one's attitude toward isolation hospitals, well before the First World War it had become difficult to assert confidently, as health authorities did in the 1890s, that a proper isolation hospital was a community's best means of controlling scarlet fever In 1908 the *Lancet* expressed the profession's disappointment that, despite vigorous isolation policies in larger industrial towns, the incidence of scarlet fever had not fallen.[85] By the 1920s, with improved understanding of streptococcal infection, it was easier for spokesmen like Newsholme to recognize why the former isolation practices had not delivered the results expected of them.

Thus, while the defenders of the isolation hospitals might criticize the critics' methodology and reject their policy demands, they were led to concede the truth in a number of their opponents' conclusions. Some hospital defenders eventually conceded that Millard's criticism had been useful in checking "the exaggerated promises made for hospital isolation" and in clearing the air of "vain statistics."[86]

In the light of this circumstance, what are we to make of the behavior of

---

[82] Arthur Newsholme, "Introduction," in Parsons, *Report on Isolation Hospitals*, pp iv–vi

[83] Arthur Newsholme, *The Elements of Vital Statistics in Their Bearing on Social and Public Health Problems*, new ed. (London. George Allen and Unwin, 1924), pp 433–34, and *idem*, *Fifty Years*, p 183

[84] Millard, "Influence of hospital isolation," p 493

[85] "Notification and isolation of scarlet fever," *Lancet*, 1908, *2* 1228–29

[86] For example, Francis Fremantle, letter to editor, *Pub Health*, 1906–7, *19* 187

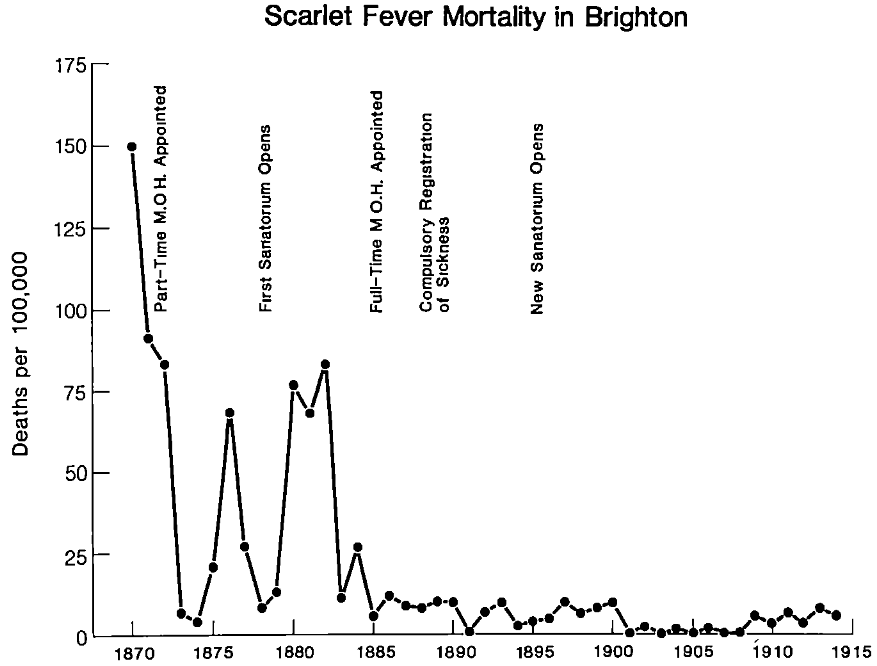


Fig 4 Scarlet fever mortality in Brighton Derived from Brighton, Medical Officer of Health, *Annual Report on the Health, Sanitary Condition, etc, of the County Borough of Brighton*

the professional majority? At the turn of the century the isolation hospital could not be easily repudiated, not even for one of the major notifiable diseases. For scarlet fever there was no publicly administered alternative to hospital isolation, and too many local professional reputations rested on the success of these conspicuous, expensive, and recently established institutions. But it would be a mistake to see this episode as merely an exercise in face saving or self-justification. The debate over the isolation hospitals shows us something about the public health enterprise in Edwardian Britain. First, one notices its limitations. Most obvious is the poor understanding of the etiology of an important disease. The inability to diagnose scarlet fever accurately lies at the heart of the failure of notification and isolation. But we can also detect the absence of consensus in statistics and epidemiology. Does scarlet fever ordinarily occur in waves of incidence over time? What are the proper criteria for judging the effectiveness of isolation hospitals: case fatality rates, attack rates in the community, or the incidence of secondary infections? What comparisons are fair. one town or group of towns with another, the experience of a single town over time, or home treatment against hospital treatment? Such questions were raised during the discussions, but not one was resolved or even analytically addressed.

On the other hand, the criticism and ensuing discussions had a con-

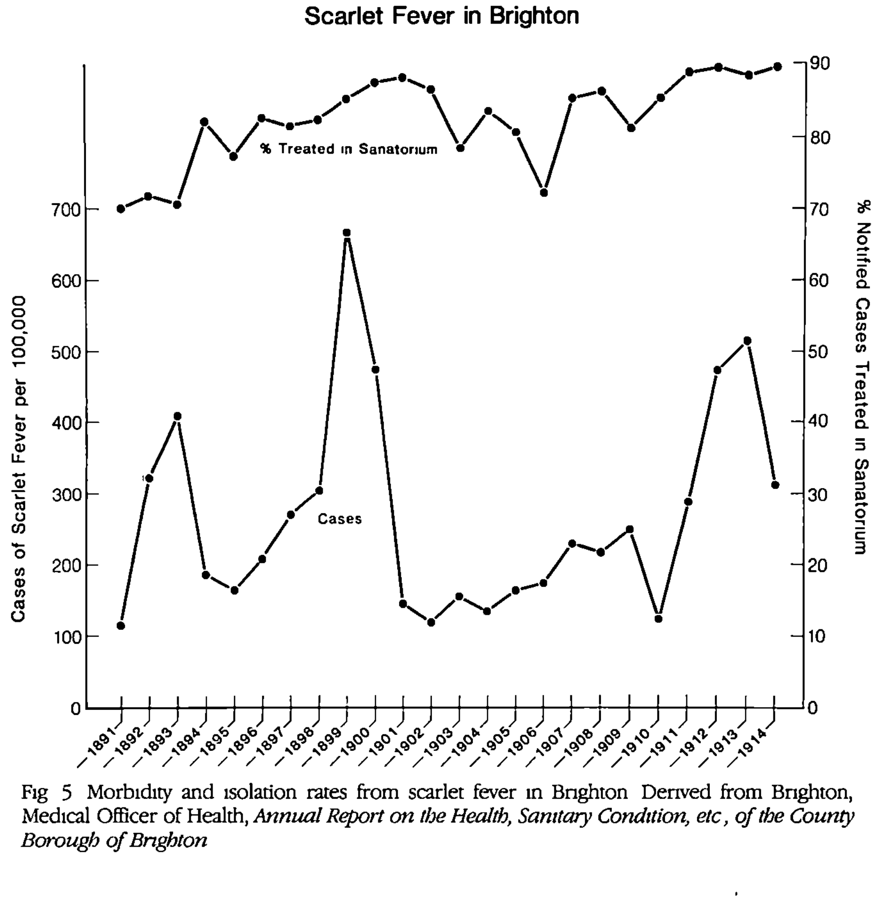


Fig 5 Morbidity and isolation rates from scarlet fever in Brighton Derived from Brighton, Medical Officer of Health, *Annual Report on the Health, Sanitary Condition, etc, of the County Borough of Brighton*

structive influence They encouraged some Medical Officers of Health to seek additional or supplemental ways of controlling scarlet fever. While Arthur Newsholme had known since the mid-1880s that scarlet fever could be transmitted through milk, it was not until the turn of the century, when the efficacy of hospital isolation for the disease was debated by the profession, that he began to consider seriously this source of infection.[87] Between 1900 and 1906 he identified four milk-borne scarlet fever epidemics in Brighton, and in the process he evolved an effective system of surveillance and administrative control.

The criticism and discussion also strengthened the arguments of the proponents of new preventive methods and encouraged the superintendents of isolation hospitals to modify institutional practices. Clement Dukes, an expert on diseases of children and medical officer of Rugby School, chal-

---

[87] I have discussed this topic elsewhere, see John M Eyler, "The epidemiology of milk-borne scarlet fever the case of Edwardian Brighton," *Amer J Pub Health*, 1986, 76 573–84

P 25,973.

lenged the hospitals to reform[88] Isolation hospitals were necessary, Dukes asserted, and it would be a sad day if they were closed. But the risk of cross-infection in these institutions made them dangerous. The hospitals needed to be saved from themselves; if they were not reformed, the public would be entitled to refuse to enter them. The reforms Dukes suggested were structural and managerial. Isolation hospitals should carefully separate acute from convalescent cases by setting aside separate wards for each, preferably small wards or even single rooms for convalescents. More novel was his demand for single isolation rooms for doubtful cases, which would permit suspicious cases to be moved from home to hospital quickly even if a diagnosis had not yet been made, while at the same time protecting other patients.

The sorts of changes Dukes had in mind were soon implemented. In 1903 new methods were introduced into the Borough and Port Fever Hospital at Southampton.[89] Acute cases were separated from convalescent cases. Complicated cases, those having, for example, enlarged tonsils or discharge from the nose or ears, were treated in a ward separate from other cases. The hospital hoped in this way to protect mild cases and convalescents from the more severe forms of infection. Patients were examined in the ambulance before admission, and uncertain cases were taken to an observation ward until a diagnosis could be established. After the new methods had received a year's trial, the superintendent of the hospital, R. E. Lauder, reported a decrease in the percentage of discharged scarlet fever patients causing return cases, a shortening of the average hospital stay required for that disease, and the complete disappearance of post-scarlatinal diphtheria. In an enthusiastic leading article, the *Lancet* drew the attention of its readers to these happy results and pointed out that the increased costs of managing an isolation hospital in this manner would be met by the savings from shorter average confinements.[90]

One of the best examples of the chastening effect of criticism was the belated demand for rigorous asepsis in isolation hospitals. The most eloquent and vigorous voice was that of A. Knyvett Gordon, Medical Superintendent of Monsall Hospital and Lecturer on Infectious Diseases at the University of Manchester.[91] Cross-infections and even the appearance of "complications," Gordon insisted, were a blight on a hospital's reputation. The extent to which such "superadded disease" occurred was a measure of the hospital's efficiency. While he conceded the possibility that aerial transmission might be responsible for secondary infections in institutions, he labeled this once-popular explanation "a very convenient harbour of refuge in which dirty hands may shelter themselves from the storm of an official inquiry."[92] Contact infection—"staff infection," as he called it—was the great hazard of hospital isolation. He recommended the use of the rigid aseptic nursing procedures that had been pioneered in Paris in the 1890s and introduced in the Anglo-American world in the first decade of the twentieth century[93] Doctors and nurses on the wards must scrub and use sterilized rubber gloves. Isolation hospitals needed operating rooms capable of supporting aseptic surgery. The practice of operating on cases, often septic cases, in the general wards must cease.

---

[88] Clement Dukes, "Isolation hospitals," *Lancet*, 1902, *2* 1152–53, and *idem*, "The borderlands of infectious diseases and their management," *ibid*, 1903, *2* 1529–30 The suggestions soon became commonplace See, for example, Edmund M Smith, "The programme of future public health reform," *Pub Health*, 1906–7, *19* 234–35

[89] R E Lauder, "An inquiry into the source of scarlatinal infection and its bearing upon hospital treatment," *Lancet*, 1904, *1* 712–15

[90] "The infectivity of scarlet fever," *Lancet*, 1904, *1* 882–83

[91] A. Knyvett Gordon, "Some practical points in the management of an isolation hospital," *Pub Health*, 1904–5, *17* 384–91

In Gordon's plan, the isolation hospital must be regulated by the dictates of bacteriology Each hospital should have its own laboratory At the Monsall Hospital, smears and cultures were made at admission, at the appearance of complications, and at discharge. Any patient having bacilli in nose, throat, or ears morphologically akin to the diphtheria organism was regarded as a source of diphtheria[94] Gordon conceded it was impossible to tell when a scarlet fever patient ceased to be infectious, but he recognized that scarlet fever was a "mixed infection" in which "the assortment of organisms in any two cases is seldom the same," and which, in contacts, may give rise to scarlet fever, septic sore throat, or "some other streptococcal manifestation."[95]

Gordon's preoccupation with bacteriological diagnosis and asepsis led him to conceive of the isolation hospital in grander terms than many of his contemporaries and to compare it to the general hospitals. Municipal authorities had conceived of their hospitals principally as places to isolate cases. They had assumed that, in the hospital, "infectious diseases can be treated, as they are tabulated; in bulk," and had interested themselves mostly in things that could be "shown off": architectural details, "glazed tiles and glass tables."[96] The success or failure of a hospital, Gordon argued, lay with its staff. Municipal hospitals, like the general hospitals, should have nurse-training programs to ensure a supply of conscientious, properly trained, and (he did not need to add) inexpensive nurses. On the other hand, the medical staff needed to earn higher salaries in order to attract more qualified applicants and boost morale. Finally, the staffs of isolation hospitals needed to cultivate an academic spirit of inquiry and to contribute to the advancement of knowledge. In short, the municipal hospitals must adopt the standards of the very best voluntary hospitals.

---

[92] *Ibid*, p 385

[93] This important topic has not received the historical attention it deserves But see the valuable suggestions in James H Cassedy, *Charles V Chapin and the Public Health Movement* (Cambridge, Massachusetts Harvard University Press, 1962), pp 118–19 and 120–21 For an indication of the acceptance of these ideas in Britain, see also Alexander Anderson, "Scarlet fever. some points in the prevention of hospital complications and return cases," *Pub Health*, 1904–5, *17* 365–72 The goal of aseptic nursing led to some discussion of the cubicle system of hospital design, wherein each patient was isolated in a small separate room as at the Pasteur Hospital in Paris See H E Corbin, "Isolation in isolation hospitals," *Pub Health*, 1908, *21* 74–77

[94] Routine throat cultures for diphtheria were made in other isolation hospitals See Scatterty, "Hospital isolation," pp 362–63

[95] Gordon, "Some practical points," p 385

[96] *Ibid*, pp 390 and 385.

As Gordon's paper shows us, medical opinion at the turn of the twentieth century regarded the throat as the primary site of scarlet fever infection. In an effort to prevent secondary cases and to shorten the period of confinement of complicated cases, some hospital authorities had begun to attack necrotic tissue in the throats of the infected with chemicals or scalpel.[97] Such treatment, while drastic, reflects a new theory of localization that, coupled with the existence of return cases and the example of diphtheria, led a number of Medical Officers of Health to conclude that the agent of scarlet fever, like the diphtheria bacillus, might be present and growing in the throats of apparently healthy individuals.[98] Healthy carriers were added to milk and to undetected cases as sources of infection health departments often overlooked.

Newsholme had urged his colleagues to seek out undetected cases.[99] In seconding his recommendation, the *Lancet* pointed out that health departments would have to change their emphasis: they must replace sanitary inspectors with Assistant Medical Officers of Health capable of doing systematic bacteriological screening, and they must procure greater power to control contacts and to confine temporarily those who might be harboring pathogenic organisms in their throats.[100] Thus, their examination of the defects of the policy of isolation for scarlet fever led the profession's spokesmen to advocate an expansion of those very devices which hospital critics like Marriott and Millard abhorred. The critics won their point on the preventive role of past isolation policy in scarlet fever without stemming the tide toward the new public health.

[97] *Ibid*, p 386, William McCallin, "Treatment of discharges in scarlet fever patients," *Pub Health*, 1904–5, *17* 757–60, and Lauder's comments in the discussion by Willoughby, "Value of hospitals," p 381

[98] Newsholme, "Protracted and recrudescent infection," *Med-Chir Trans*, pp 557–58, 560–61, and 580–83, or in *Pub Health*, pp 697, 699–700, and 714–16 See also Thresh, "Utility of isolation hospitals," p 1060

[99] See Newsholme's address at Victoria University, Manchester, which was published as *The Role of "Missed" Cases in the Spread of Infectious Disease*

[100] "The influence of the unrecognized case in the spread of communicable disease," *Lancet*, 1904, *1* 1666–67

MADNESS AND MEDICINE: TRENDS IN AMERICAN MEDICAL THERAPEUTICS FOR INSANITY, 1820–1860*

Samuel B. Thielman

> Much of the success which we have had in the management of recent cases of insanity, is to be ascribed to active medicinal treatment. We have witnessed the most decided and unequivocal good effects from the use of active remedies, and continue to prescribe them, with a confidence strengthened by daily observation of their utility. Insanity is a disease of the physical system, ensuing from a derangement of the functions of the brain and nerves, and requires medicinal treatment in its cure, as much as any other physical disease[1]

So wrote Samuel B. Woodward, superintendent of the State Lunatic Hospital at Worcester, Massachusetts, in his annual report of 1835, reflecting both his view that insanity was fundamentally a bodily disease and his faith in the efficacy of properly administered medical therapies. Woodward's comments are particularly significant because they were made at a time when that other staple of nineteenth-century treatment for the insane, moral therapy, was also quite influential.[2] But whereas moral therapy, an essentially psychological approach to treatment, has received a great deal of

---

[*] Revised version of a paper presented at the fifty-seventh annual meeting of the American Association for the History of Medicine, San Francisco, California, 5 May 1984 Research for this paper was supported in part by Grant MH 17632-02, National Institute of Mental Health I wish to acknowledge the advice, support, and special kindnesses of Peter C English, Robert Durden, Seymour Mauskopf, John Crellin, Margaret Cook, and (especially) Sara Wilson Thielman, which they provided at various stages in the preparation of the paper Permission to quote material from the Galt Papers I and II, Earl Gregg Swem Library, College of William and Mary, Williamsburg, Virginia, was kindly granted by Margaret Cook, Curator, and from the John Moore McCalla Papers, William B Perkins Library, Duke University, Durham, North Carolina, by Robert L. Byrd, Curator of Manuscripts

[1] *Reports and Other Documents Relating to the State Lunatic Hospital at Worcester, Massachusetts* (Boston Dutton and Wentworth, 1837), pp 120–21

[2] A number of articles and books discuss moral therapy in the early nineteenth century One of the most illuminating discussions is William F Bynum, Jr , "Rationales for Therapy in British Psychiatry, 1780–1835," in *Madhouses, Mad-doctors, and Madmen,* ed Andrew Scull (Philadelphia University of Pennsylvania Press, 1981), pp. 35–57 Other significant accounts include Alexander Walk, "Some aspects of the moral treatment of the insane up to 1854," *J Mental Sci*, 1954, *100* 807–37, Eric T Carlson and Norman Dain, "The psychotherapy that was moral treatment," *Amer J Psychiatry*, 1960, *117* 519–24, J Sanbourne Bockoven, *Moral Treatment in Community Mental Health* (New York. Springer, 1972), and Andrew Scull, "Moral Treatment Reconsidered Some Sociological Comments on an Episode in the History of British Psychiatry," in Scull, ed , *Madhouses,* pp 105–20 Moral therapy is also discussed in several more general books, including Albert Deutsch, *The Mentally Ill in America* (New York. Columbia University Press, 1946), pp 88–113, Norman Dain, *Concepts of Insanity in the United States, 1789–1865* (New Brunswick, New Jersey Rutgers University Press, 1964), Gerald N Grob, *Mental Institutions in America Social Policy to 1875* (New York Free Press, 1973) Dain and Grob both make numerous references to moral therapy

Bull Hist Med 1987, *61* 25–46

attention from historians of psychiatry, medical therapy for insanity has received little notice, despite its importance to American asylum physicians.[3]

Part of the reason medical therapy has been neglected in histories of psychiatry is that accounts of this period have been concerned largely with either propounding or responding to the "social control" theory of asylum development.[4] Consequently, studies on antebellum mental health care have dealt primarily with "external" factors that influenced physicians. While the study of institutional and social influences upon the development of American mental health care undoubtedly has much value, it has tended to portray asylum physicians more as agents of antebellum society than as physicians whose therapeutic concerns reflected the theoretical and clinical concerns of the larger American medical profession. As a result, historians of mental health care, despite their many stimulating contributions, generally have failed to examine adequately antebellum medical therapeutics for the insane, and an important source of information about the way patients and mental disorders were viewed in early nineteenth-century America has been neglected

The story of medical therapy for insanity during this period is complex, not only because of the variety of conceptions of madness during the early nineteenth century, but also because of the changing therapeutic trends in general medicine. For this reason, this paper is divided into three sections, the first concerning physicians for the insane and their ideas about madness during the period, the second the decline of antiphlogistic therapy from 1820 to 1850, and the third the increased reliance upon a variety of drugs during the period from about 1830 to 1860. My contention is that therapeutic approaches were determined primarily by the interplay of theoretical considerations and clinical experience, and that this interplay was of consid-

[3] The only major article I have located which deals with American therapy for insanity during the early nineteenth century is an overview of American therapies for mental disorders by William Malamud titled, "The History of Psychiatric Therapies," in *One Hundred Years of American Psychiatry*, ed J K Hall (New York Columbia University Press for the American Psychiatric Association, 1944), pp 273–323 Guenter B Risse's *Hospital Life in Enlightenment Scotland Care and Teaching at the Royal Infirmary of Edinburgh* (Cambridge, England Cambridge University Press, 1986) contains a wealth of useful information about therapeutic practices that had an impact on American physicians well into the period discussed in this paper See also Erwin H Ackerknecht, *Therapeutics from the Primitives to the Twentieth Century* (New York Hafner, 1973), John Harley Warner, "The nature trusting heresy American physicians and the concept of the healing power of nature in the 1850s and 1860s," *Persp Amer Hist*, 1977–78, *11* 291–324, Charles E Rosenberg, "The therapeutic revolution medicine, meaning, and social change in nineteenth-century America," *Persp Biol Med*, 1977, *20* 485–506, William G Rothstein, *American Physicians in the Nineteenth Century From Sects to Science* (Baltimore Johns Hopkins University Press, 1972), chap 3, Henry Shafer, *The American Medical Profession, 1783–1850* (New York Columbia University Press, 1936), pp 96–147, Edward H Clarke et al, *A Century of American Medicine, 1776–1876* (1876, reprint, Brinklow, Maryland Old Hickory Bookshop, 1962), pp 3–72

[4] For discussions of the literature on the social control theory, see Andrew Scull, "Humanitarianism or control? Some observations on the historiography of Anglo-American psychiatry," *Rice Univ Studies*, 1981, *67* 21–40, Gerald N Grob, "Rediscovering Asylums The Unhistorical History of the Mental Hospital," in *The Therapeutic Revolution*, ed Morris J Vogel and Charles E Rosenberg (Philadelphia University of Pennsylvania Press, 1979), and Nancy Tomes, *A Generous Confidence Thomas Story Kirkbride and the Art of Asylum-keeping, 1840–1883* (Cambridge, England, and New York Cambridge University Press, 1984), pp 1–18

erable importance in determining the way in which physicians for the insane treated their patients.[5]

ANTEBELLUM ALIENISTS AND THEIR IDEAS

In thinking about nineteenth-century mental health care, one must distinguish between modern psychiatry and the "alienism" of nineteenth-century America. "Psychiatry" is a designation that came into use in this country during the late nineteenth century, and reflects the influence of American progressivism, German *psychiatrie,* and "scientific medicine" on American physicians interested in mental disorders.[6] An alienist was any physician who made diseases of the mind his special area of expertise. The training of American alienists, like that of other American physicians of the early nineteenth century, varied greatly in length and quality.[7]

Pliny Earle, for instance, a prominent alienist, graduated in medicine from the University of Pennsylvania in 1837. He traveled for two years overseas, visiting asylums, attending medical lectures, and exploring Europe. He practiced briefly in Philadelphia as a general practitioner in 1839. Before becoming superintendent of the Bloomingdale Hospital in New York, he served as a resident physician for four years at the Frankford Retreat, a Quaker asylum in Pennsylvania.[8]

---

[5] The following annual reports were surveyed for information about asylum therapeutics (Titles of reports of individual institutions often vary from year to year The titles used here are the ones cited in the *Index Catalogue of the Library of the Surgeon General's Office*) Retreat for the Insane at Hartford Annual Reports of the Officers (Hartford, Connecticut Hudson and Skinner, 1827, 1830, 1831, 1833–34, Hartford, Connecticut Case, Tiffany, 1839–40, 1854, 1855–60), Eastern Kentucky Lunatic Asylum, at Lexington. Annual Reports of the Board of Commissioners and Medical Superintendent (Frankfort, Kentucky A. G Hodges, 1846, 1847–60), State Lunatic Asylum, at Worcester Annual Reports of the Trustees and Superintendent (Boston· Dutton and Wentworth, 1833–55, Boston William White, 1855–62), State Lunatic Asylum, at Utica. Annual Reports of the Board of Managers and Superintendent (1844–51, reprint, Utica, New York n p, 1890, 1853–63, reprint, Utica, New York n.p, 1895), Asylum for the Relief of Persons Deprived of the Use of Their Reason Annual Reports of the Managers and Superintendent (Philadelphia. Joseph Rakestraw, 1852–60, Philadelphia William Bellowe, 1862–70), Eastern Lunatic Asylum of Virginia at Williamsburg Annual Reports of the Board of Directors and Superintendent to the Governor of the State, 1824, 1827, 1830–42, 1844–48, 1849–54, 1859–61 (Publication information indicated in reports only for years 1847 and 1851, Richmond Shepherd and Colin, 1847, Richmond Richie and Dunnavant, 1851), Western State Lunatic Asylum of Virginia at Staunton. Annual and Biennial Reports of the Board of Directors and Medical Superintendent (1836–40, reprint, Staunton, Virginia n p, 1870, Staunton Kenton Harper, 1843–47, Staunton L and J A. Waddell)

[6] The changing character of the profession is reflected in the changes of its organization's name From its founding in 1844 to 1892, it was known as the Association of Medical Superintendents of American Institutions for the Insane In 1892, the name was changed to the American Medico-Psychological Association In 1921, the association became the American Psychiatric Association. For a useful account of the state of psychiatry at the turn of the century, see Gerald N Grob's *Mental Institutions and American Society, 1875–1940* (Princeton, New Jersey Princeton University Press, 1983), pp 46–71, and Nathan Hale, *Freud and the Americans The Beginnings of Psychoanalysis in the United States, 1876–1917* (New York Oxford University Press, 1971), esp pp 47–97

[7] On medical education during the period, see Joseph F Kett, *The Formation of the American Medical Profession The Role of Institutions, 1780–1960* (New Haven Yale University Press, 1968), pp 1–31, and Rothstein, *American Physicians,* esp pp 85–88 The diversity among the alienists is suggested by the diverse backgrounds of the thirteen founders of the AMSAII See Winfred Overholser, "The Founding and the Founders of the Association," in Hall, ed., *One Hundred Years of Psychiatry,* pp 45–72, Constance M. McGovern, *Masters of Madness Social Origins of the American Psychiatric Profession* (Hanover, New Hampshire University Press of New England for the University of Vermont, 1985), pp 28–36, 44–105

By contrast, Samuel B. Woodward obtained his early education at the district school of Torrington, Connecticut, studied medicine with his father, a physician, acquired a license to practice from the Connecticut Medical Society, and set up a private practice at Wethersfield in 1810. He received an honorary M.D. from Yale in 1822. In 1832, he was appointed superintendent of the Massachusetts State Lunatic Hospital at Worcester where he had a distinguished career.[9] As these examples indicate, the physicians for the insane during the antebellum years were a diverse group, united by a shared interest in insanity and its treatment rather than by common training.

Though there was no general agreement on nomenclature, most physicians would have accepted at least a general division of mental disorders into mania, monomania, melancholia and dementia.[10] Mania was a state of mind in which there was, as Woodward described it, "sleeplessness, disposition to loud talking, ... dissociation of ideas, rapid changes of the feelings, impetuosity of manner, delusion," and so on.[11] Melancholia, on the other hand, was a condition in which there was "no present enjoyment, no hope, no confidence, everything wears a gloomy aspect, every contemplation is sad."[12] Two other diagnoses of insanity, monomania (or partial insanity) and dementia, were often made by asylum physicians. The term *monomania* was sometimes used to designate a type of melancholia in which one thought predominated.[13] *Dementia,* though listed as a distinct diagnosis in many annual reports, was a broadly inclusive term used to describe any patient in an advanced stage of insanity who exhibited the "absence of intellect; madness; [or] fatuity."[14]

Among the American asylum physicians who wrote extensively on insanity, none regarded diagnosis as being important in formulating ideas about treatment. "No specific remedy for insanity has as yet been discovered," wrote superintendent Amariah Brigham. "Different cases require very different treatment, and that which would be serviceable at one period of the complaint, might be injurious at another."[15] Indeed, though asylum physicians held to certain contemporary ideas about the physical basis of insanity, treatment was tailored to the patient's symptoms Describing his approach to treatment in 1842, Pliny Earle asserted, "We *prescribe to symptoms,* not, as a general rule *to diseases,* and we feel at liberty to take the whole range of the materia medica."[16] Indeed, at least one well-read alienist, John Minson Galt II, did not even believe that "nervous diseases" could ultimately be understood as discrete entities (though in practice he used the same diagnostic categories as everyone else). He wrote: "I judge apoplexy and other varieties of nervous disease, and the varieties of madness to be only the modified effects of one course."[17]

---

[8] Howard Kelly and Walter Burrage, *Dictionary of American Medical Biography* (New York. Appleton, 1928), s.v "Earle, Pliny", F B Sanborn, *Memoirs of Pliny Earle* (Boston· Damrell and Upham, 1898), pp 61–143, 144–51

[9] Kelly and Burrage, *Dictionary,* s v "Woodward, Samuel", Dumas Malone, ed , *Dictionary of American Biography* (New York. Scribners, 1935), s.v. "Woodward, Samuel "

[10] William Cullen, the influential Scottish physician, teacher, and classifier of diseases, wrote, "In my limited view of insanity, I must go on to consider them under the two heads of Mania and Melancholia and though I am sensible that these two genera do not comprehend the whole species of insanity, I am not clear in assigning the other species which may not be comprehended under these titles" (William Cullen, *First Lines on the Practice of Physic,* ed Charles Caldwell, 2 vols [Philadelphia· Parker, 1816], 2 506) On Cullen's broad influence in America, particularly on Benjamin Rush, see Richard H Shryock, *Medicine and Society in America, 1660–1860* (Ithaca, New York. Cornell University Press, 1960), pp 67–72

[11] Samuel B Woodward, "Observations on the medical treatment of insanity," *Amer J Insanity,* 1850, 7 24

[12] *Ibid*, p 19

[13] Robley Dunglison, *Medical Lexicon,* 11th ed (Philadelphia· Blanchard and Lea, 1854), s v "melancholia."

[14] Robert Hooper, *Lexicon Medicum, or Medical Dictionary,* 16th Amer ed (New York Harper and Brothers, 1848), s v "dementia", Dunglison, *Medical Lexicon,* s v "dementia."

The writings of early American alienists contain several distinct but complementary perspectives on the nature of insanity. Because these views influenced the way therapy was approached, a brief discussion of them is useful.[18] One approach saw madness as essentially a disease of the mind, giving little credence to contemporary theories of the somatic origin of madness. Few if any American alienists relied exclusively on this view, although many gave it some weight in their thinking about madness. A second approach, advocated by most Americans writing on insanity, viewed insanity as a bodily disease which, like other bodily diseases, was best treated with depleting or stimulating measures. The mind, as such, was not involved The third view, inspired by phrenology, held that the brain was a series of discrete organs, each mediating a particular mental faculty, and that various forms of insanity were brought about when particular organs were diseased. Phrenology served as a physiological psychology for American asylum physicians of the antebellum period, giving them a biological theory of madness that incorporated certain aspects of contemporary philosophical thought.

A major influence on American asylum physicians, Philippe Pinel, placed great emphasis on the idea that mental disorders were diseases of the mind.[19] In his 1801 book, *Traité médico-philosophique sur l'aliénation mentale* (which was translated into English in 1806), Pinel suggested that in many cases madness was not a result of an organic lesion of the brain, and he criticized practitioners who allowed themselves to be confined within the "fairy circle of antiphlogisticism," to the neglect of mental therapies.[20] Consequently, Pinel emphasized the value of philosophy, particularly the philosophy of sensationalism, for understanding the insane. "In order to trace the numerous changes and perversions of the human understanding with success," he wrote, "it will . . . be found advantageous to cultivate an intimate acquaintance with the writings of Locke and Condillac."[21] Though they were enthusiastic about Pinel's moral therapy, American alienists were less enthusiastic about his particular philosophical ideas, preferring to base their psychological understanding on the more conservative faculty psychology of Scottish Common Sense philosophy (which was, more or less, the "national philosophy" of America in the early nineteenth century).[22] In general, though, American alienists were more reliant upon physical than philosophical theories of insanity. Indeed, the most comprehensive American work on treatment of the insane, *The Treatment of Insanity* (1846) by John M Galt II, includes quotations from and abstracts of ninety-nine works discussing therapy, the majority of which are devoted to detailing specifics of physical treatments.

---

[15] [Amariah Brigham], "The medical treatment of insanity," *Amer J Insanity,* 1847, *3* 353

[16] Galt Family Papers II, folder 75, Letter from Pliny Earle, 31 January 1842 The Galt Family Papers, located at the Earl Gregg Swem Library of the College of William and Mary, Williamsburg, Virginia, are a collection in excess of ten thousand items which serve as a rich source of information about the theory and practice of asylum medicine in the antebellum South. They include not only a number of notebooks in which Galt expressed his ideas about various theories of insanity and its treatment, but also Galt's extensive medical correspondence Since the publication of Norman Dain's *Disordered Minds The First Century of Eastern State Hospital in Williamsburg, Virginia* (Williamsburg, Virginia Colonial Williamsburg Foundation, distributed by the University Press of Virginia, 1971), a considerable amount of material has been added to the Galt Family Papers The collection is currently divided into two parts, cited here as GFP I and GFP II

[17] GFP I, MsV 119, medical commonplace book, 1847, no pagination

[18] For a fuller discussion of concepts of insanity during this period, see Dain, *Concepts,* which places somewhat different emphases than mine on the various intellectual factors at play in early nineteenth-century American thought about insanity

The views of Benjamin Rush, whose *Medical Inquiries and Observations upon the Diseases of the Mind* (1812) influenced the practice of non-asylum physicians throughout the first half of the nineteenth century, epitomize the predominantly somaticist American view of insanity. Rush believed that, while both physical and moral causes might incite insanity, madness was seated primarily in the blood vessels of the brain.[23] He objected to the idea that madness originated in the mind, not only because the brains of persons who had died from madness were almost never free of "morbid" appearance but also because the mind was incapable of performing any operations independently of the "medium" of the body.[24] Although most asylum physicians rejected Rush's particular ideas about the pathology of madness, most accepted his conception that the functioning of the mind was intimately connected with the well-being of the body.

---

[19] On the influence of Pinel, see Deutsch, *Mentally Ill*, p 95, Dain, *Concepts*, pp 3–27, Grob, *Mental Institutions in America*, pp 39–45 On Pinel and his philosophy, see Walter Riese, *The Legacy of Philippe Pinel An Inquiry into Thought on Mental Alienation* (New York Springer, 1969), Kathleen Grange, "Pinel and eighteenth-century psychiatry," *Bull Hist Med*, 1961, *35* 442–56, and George Rosen, "The philosophy of Ideology and the emergence of modern medicine in France," *Bull Hist Med*, 1946, *20* 328–37

[20] Philippe Pinel, *A Treatise on Insanity*, trans D D Davis (1806, reprint, Washington, D C University Publications of America, 1977), p 5

[21] *Ibid*, p 46

[22] On the role of Common Sense philosophy in early nineteenth-century American thought, see Henry F May, *The Enlightenment in America* (New York Oxford University Press, 1976) On Common Sense philosophy in American science, see George Daniels, *Science in the Age of Jackson* (New York Columbia University Press, 1968), chap 3, and Theodore Dwight Bozeman, *Protestants in an Age of Science The Baconian Ideal and Antebellum American Religious Thought* (Chapel Hill. University of North Carolina Press, 1977), pp 21–31.

[23] Benjamin Rush, *Medical Inquiries and Observations upon the Diseases of the Mind* (1812, reprint, New York Hafner Publishing under the auspices of the Library of the New York Academy of Medicine, 1962), pp 26–27 Rush's book went through five editions between 1812 and 1835 Partial accounts of his influence during this period are found in Deutsch, *Mentally Ill*, pp 86–87, and Dain, *Concepts*, pp 14–27

Samuel Woodward, writing twenty-five years after Rush, strongly affirmed the essentially physical nature of mental disease. "We must not for a moment overlook the fact that insanity is a physical disease," he wrote. "The mind in the most deplorable case [of insanity] is not obliterated; its integrity is only disturbed; it remains the same; its faculties ready, as soon as the deranged physical structure shall have regained health and soundness, to resume operations and exhibit the manifestations which legitimately belong to them."[25]

One reason for the rejection of a purely "mental" approach to insanity in the United States was the view of many superintendents that the mind itself could not be diseased, a view that was based in part on religious conviction. Many alienists believed that the mind was immortal, and that only its physical medium, the brain, could be diseased, since only the mortal body could be injured. Consequently, the use of pharmaceutical and other physical agents to ameliorate or cure madness was a logical outgrowth of the somaticist philosophy of American physicians for the insane. Pliny Earle wrote in 1833:

> A fundamental error formerly existed with regard to the nature of insanity, it was believed that the mind is itself diseased instead of the organ through which it is manifested But disease is the minister of death, and the mind, a scintillation from the fire of Heaven, being free from the power of the latter [the brain], is consequently exempted from the encroachments of the former [disease]. It is, therefore, now generally acknowledged that insanity is produced by a cerebral lesion . . [and] it necessarily follows that the disease is within reach of remedial agents.[26]

Many physicians interested in treating the insane were influenced by various medical "systems." These systems were characterized by claims that most diseases could be understood through a few fundamental principles.[27] During the early years of the nineteenth century, many American physicians relied upon the ideas of British theorists like William Cullen, who placed great emphasis on debility of the nervous system as a cause of disease, and John Brown, who saw diseases in terms of excess or lack of bodily excitement. Although the influence of such theories had diminished by the 1830s, vestiges of them continued to influence therapy throughout the antebellum period. Among systems theorists, "inflammation" received a great deal of attention, and when this condition was thought to exist, depletive or antiphlogistic measures were called for. Of the mental disorders, mania in particular was believed frequently to involve inflammation. These systems approaches lost influence among American alienists as the century wore on, but antiphlogistic therapy in one form or another remained an important component of medical therapy for insanity for many years.

---

[24] Rush, *Medical Inquiries*, p 16

[25] *Seventh Annual Report of the Trustees of the State Lunatic Hospital at Worcester* (Boston Dutton and Wentworth, 1840), p 65

[26] Pliny Earle, "Researches in reference to the causes, duration, termination and moral treatment of insanity," *Amer J Med Sci*, 1833. *22* 351

[27] A clear explanation of these systems is given in George Corner, ed , *The Autobiography of Benjamin Rush* (1948, reprint, Westport, Connecticut. Greenwood Press, 1970), pp 361–66 See also Lester S King, *The Medical World of the Eighteenth Century* (Chicago University of Chicago Press, 1958), pp 139–55

A third view of the nature of insanity, that of phrenology, was also influential among the alienists, especially during the 1830s and 1840s.[28] Those who accepted phrenology adopted the view, originating in Germany, that the brain was composed of separate organs, each representing a mental faculty, and that when one or more of the organs became diseased, insanity occurred. These organs corresponded closely to the mental "faculties" being discussed by contemporary philosophers, and, consequently, phrenology provided a way for alienists to incorporate philosophical views, to some degree, into their somatic approach. While the phrenological view of madness was controversial, it provided a theoretical basis for understanding mental disorders at a time when the systems theories were becoming obsolete.

In practice, these three ways of looking at insanity were seldom separated clearly in the minds of practitioners. The physicians treating insanity were usually eclectic in their thinking and were aware of the limitations of the various theories. Indeed, their practice was usually determined by the interplay between theoretical and empirical considerations. Prevailing attitudes are reflected, to some extent, in a letter about remedies for insanity written in 1826 by Christian Boerstler, a Maryland physician, to an interested layman:

> The great variety of causes, innumerably diversifyed temperaments, and various phases of mental derangement, at once preclude the idea of any specific remediate agent. But in the present defective state of Physiologic and Metaphysic Science, the plans of treatment must necessarily be little short of empiricism; and we must therefore pursue that treatment which has proven most successful. "Experientia docet" is the best evidence for my plan of operating.[29]

[28] This account of phrenology as it related to mental health care in the antebellum period is based on my own reading of primary and secondary source material, particularly Amariah Brigham's appendix to the third American edition of J C Spurzheim's *Observations on the Deranged Manifestations of the Mind or Insanity* (Boston March, Capen, and Lyon, 1836), pp 260ff, and George Combe's account of his American tour, particularly his description of Woodward's clinical use of phrenology at the Worcester asylum, in *Notes on the United States of North America during a Phrenological Visit in 1838–9–40,* 2 vols (Philadelphia Carey and Hart, 1841), 2 221–23 See also F B Sanborn, *Memoirs of Pliny Earle* (Boston Damrell and Upham, 1898), p 281, Galt's remarks on phrenology in GFP I, MsV 119, medical commonplace book, 1847, various articles in the *Amer J Insanity* between 1844 and 1849, when the journal was under the editorial direction of the phrenologically oriented Brigham, E T Carlson, "The influence of phrenology on American psychiatric thought," *Amer J. Psychiatry,* 1958, *115* 535–38 and John Davies, *Phrenology Fad and Science* (1955, reprint, n p Archon Books, 1977), pp 89–97, 189–90.

[29] Boerstler to Andrew McCalla, 5 May 1826, John Moore McCalla Papers, William R. Perkins Library, Duke University, Durham, North Carolina.

Boerstler's letter suggests the pragmatic nature of antebellum physicians' thinking about therapy for insanity.

ANTIPHLOGISTIC THERAPY AND ITS DECLINE

From 1820 to 1850, the use of antiphlogistic measures was widespread in general medicine.[30] Among the measures used for depletion were general bloodletting, cupping, and the use of purgatives, emetics, and setons. Except for general bloodletting, these measures were also used to some extent by alienists as well. As a group, however, asylum physicians were moving away from the notion that insanity was caused by inflammation, and as a result they also moved away from heroic antiphlogistic measures. The decline can be attributed to theoretical fluctuations and to the alienists' growing conviction that vigorous antiphlogistic measures were harmful to the patient

Superintendents have left behind numerous case histories illustrating their treatment methods in annual reports, in journals and in asylum records A particularly illuminating report in the *American Journal of the Medical Sciences* describes the treatment of a woman with "religious excitement" at the Friends Asylum near Frankford, Pennsylvania. The patient, a twenty-five-year-old unmarried woman from Philadelphia, was admitted to the asylum on 4 February 1835 with her second attack of insanity. Her physicians, Charles Evans and Robert R. Porter, wrote that they attempted to treat her "with as strict an interpretation of the pathological symptoms as could be arrived at under the peculiar circumstances."[31] In a manner suggesting a phrenological orientation, they noted the difficulty of determining what portion of the brain was diseased using physical symptoms alone, and offered the idea that disordered thought and behavior could indicate the diseased portion of the brain.[32]

They initially depleted this patient by frequent use of "cups to the head"

---

[30] There are many works relating to heroic therapy Of general interest are William Brockbank, *Ancient Therapeutic Arts* (Springfield, Illinois Charles C Thomas, 1954), Lester S King, "The bloodletting controversy a study in the scientific method," *Bull Hist Med*, 1961, *35* 1–13, and B M. Randolph, "The bloodletting controversy in the nineteenth century," *Ann Med Hist* 1935, n.s, 7 177–82 On bloodletting in American practice, see especially Gert H Brieger, "Therapeutic conflicts and the American medical profession in the 1860s," *Bull Hist Med*, 1967, *41* 215–22, Leon S Bryan, "Bloodletting in American medicine, 1830–1832," *Bull Hist Med.*, 1964, *38*· 516–29, Alex Berman, "The heroic approach in nineteenth-century therapeutics," *Bull Amer Soc. Hosp Pharmacists*, 1954, *11* 321–27

[31] Charles Evans and R. R. Porter, "Reports of cases of insanity, treated at Friends Asylum near Frankford," *Amer J Med Sci*, 1836, *19* 106 Charles Evans was born in Philadelphia in 1802 and finished his studies in medicine at the University of Pennsylvania in 1828 He was attending physician at the Friends Asylum from 1832 to 1852 (William B Atkinson, ed, *The Physicians and Surgeons of the United States* [Philadelphia Charles Robson, 1878]) Robert R. Porter was twenty-four years old at the time the article was written and had just received his medical degree from the University of Pennsylvania the year before He stayed only one year at the Friends Asylum, spending the rest of his professional life in Wilmington, Delaware, apparently as a general practitioner (Kelly and Burrage, *Dictionary*, s v "Porter, Robert R.") For more on practice at the Frankford Retreat, see Norman Dain and E T Carlson, "Milieu therapy in the nineteenth century patient care at the Friends Asylum, Frankford, Pennsylvania, 1817–1861," *J Nerv Mental Dis.*, 1960, *131* 177–290

[32] Evans and Porter, "Reports of cases," p 107 For Porter's views on phrenology, see R. R. Porter, "Reports of cases of insanity, treated at Friends Asylum near Frankford," *Amer J Med Sci*, 1837, *20* 350–53

(a technique of bleeding), and repeated this treatment frequently.[33] They then placed her on tincture of cantharis (an extract of dried Spanish fly, used for its stimulant properties) and carbonate of iron (used to stimulate the uterus), both probably intended to excite the patient out of her debilitated state.[34] Despite their treatment, on 11 May the doctors noted that the patient seemed "utterly careless in dress, mischievous," her habits were "filthy."[35] Still, there were some positive signs. When reproved, the patient was ashamed and promised to try to do better. In June, she was placed on morphine, apparently as a sedative, and in July she was given pilvae hydrargyri, or "blue pill," a mercury compound used in this case as an alterative drug.[36] Variations of this sort of therapy continued for twenty-four months, and the patient was finally discharged, having become, according to her physicians, "the most careful person in the house of dress and person.... She abounds in gratitude; [has] regrets over the past, and declares her actions could not be controlled. [She] walks and rides out daily—[and] takes no medication."[37]

The therapeutic approach taken by these physicians was in many ways typical for the period. They treated the patient first with depleting agents, then stimulants, then sedatives and depletives again. Therapy was administered in response to various symptoms that emerged, but symptoms were interpreted according to a number of complementary theoretical viewpoints. Evans and Porter's theory of insanity was rooted in phrenological conceptions of the insane brain, while their therapy was based on concepts of excitement and depletion that were only of tangential concern to phrenology. Though theory and practice for Evans and Porter were but loosely connected, both theoretical and practical considerations seem to have determined their approach to treatment.

The attitude of Samuel Woodward was similar.[38] Prior to becoming the superintendent at Worcester, Woodward had made a business of selling drugs with his brother Henry. Because of his knowledge and experience, he subsequently came to be viewed as something of an expert in medical management by other superintendents.[39] Woodward's views on medical treatment (and many other issues) were recorded in his Worcester annual reports, which received wide notice and appear to have had a large circulation.[40] The annual report of 1844 included a particularly extensive discussion of Woodward's views on the treatment of insanity.[41] Commenting on the use of bleeding, Woodward stated unequivocally that, "[all superintendents] agree that depletion, by which [should] be understood general bleeding and active cathartics, is not favorable in insanity, as it rarely affords more than temporary relief, and frequently produces marked injurious effects."[42] He went on to explain that the supposed indications for depletion (presumably, racing pulse, flushed complexion) were not the cause of insane excitement but were, rather, an incidental effect of it. Woodward, like most other superintendents, valued local bleeding with cups or leeches. Such measures were, however, intended to lessen excitement rather than to elicit a cure.[43] Local bleeding, he said elsewhere, was useful primarily as a means to "prepare the system for more efficient remedies."[44] Woodward eschewed the use of strong cathartics, although he believed that the judicious use of mild laxatives and alteratives had value[45] Woodward's views on heroic therapy were shared by other physicians for the insane. Though most were reluctant to use general bleeding and strong purges, few excluded the use of less vigorous depletive measures.

---

[33] Evans and Porter, "Reports of cases," p 100.

[34] *Ibid*, p 100 Information on contemporary views of these drugs is from George B Wood and Franklin Bache, *The Dispensatory of the United States of America*, 3d ed (Philadelphia Grigg and Elliot, 1836), pp 155–57, 847–49 Wood and Bache was a popular guide to drugs For a bibliographical perspective that places this work in context, see Alexander Cain, *Pharmacopias, Formularies, and Dispensatories* (Chicago n d).

[35] Evans and Porter, "Reports of cases," p 100

[36] Wood and Bache, *Dispensatory*, 1836, pp 906–13, 930–31

[37] Evans and Porter, "Reports of cases," p 102

[38] For more biographical information about Woodward, see "Life of Dr Woodward," *Amer J Insanity*, 1851, *8* 119–35, Kelly and Burrage, *Dictionary*, s v "Woodward, Samuel B ", Malone, ed , *Dictionary of American Biography*, s v "Woodward, Samuel B ", and Gerald N Grob, *The State and the Mentally Ill A History of Worcester State Hospital in Massachusetts, 1830–1920* (Chapel Hill University of North Carolina Press, 1966), pp. 43–79

[39] Describing the progress made in the approach to treatment at the Eastern Lunatic Asylum, Galt wrote in one of his notebooks· "The first & second keepers had possession before the introduction of improvements

By the 1840s, the trend away from depletive therapy was well established among the superintendents. Of particular importance in the continuing decline of antiphlogistic therapy was the impact of alienists who had been affected, directly or indirectly, by the Paris clinical school of medicine.[46] From the 1820s to the 1850s, American students of medicine descended upon Paris to study under the teachers there.[47] Amariah Brigham and Pliny Earle, two of the thirteen founders of the Association of Medical Superintendents for American Institutions for the Insane (AMSAII) had stud-

---

[in patient care] No change in the medical treatment was introduced before Woodward, for depletion in the Eastern Asylum was never excessive" In another place in the notebook, he wrote "The English writers seem ignorant of Dr Woodward's opiate practice" GFP II, folder 57, "Ideas on Insanity and Medicine, 1842–61"

[40] Annual notice was made of the Worcester report in the *Boston Medical and Surgical Journal* during the period of his superintendency at the Worcester asylum, and portions of the report were sometimes abstracted. Woodward's influence on the larger medical community is suggested by an extensive article titled "Insanity," signed "W" (presumably Woodward) and published in *Boston Med Surg J*, 1837, *16* 323–30 and by the publication of his "Reminiscences" in *Boston Med Surg J*, 1840–41, *23* 9, 37, 59, 73, 90, 108, 125, 139, 314, 347

[41] *Twelfth Annual Report of the Trustees of the State Lunatic Hospital at Worcester* (Boston Dutton and Wentworth, 1844), pp 70–82 Woodward's views on treatment are also discussed in Woodward, "Observations on the medical treatment of insanity"

[42] *Twelfth Annual Report of the Trustees of the State Lunatic Hospital at Worcester*, p 70

[43] *Ibid*, pp. 70–71

[44] Woodward, "Observations on the medical treatment of insanity," p 4

[45] *Twelfth Annual Report of the Trustees of the State Lunatic Hospital at Worcester*, p 72

[46] The influence of the Paris school on American medical therapeutics is reviewed in Warner, "Nature trusting heresy."

[47] Russell M Jones, "An American medical student in Paris," *Harvard Library Bull*, 1967, *15* 59–81

ied in Paris, and one can reasonably suppose that the broad impact of the Paris school on American medicine affected the younger members of the "original thirteen" as well as newly joining members of the association.[48]

With the founding in 1844 of the AMSAII came the association's journal, the *American Journal of Insanity* The *Journal* made it increasingly likely that the leadership of the AMSAII could bring about uniform standards of care. The *American Journal of Insanity* contained a number of articles on the medical treatment of insanity, all condemning heroic therapy, and most de-emphasizing antiphlogistic treatment.[49]

Amariah Brigham, editor of the *American Journal of Insanity* and author of the most comprehensive American treatise on diseases of the nervous system during this period, in a paper published in 1847 stated that although there was no specific remedy for insanity, treatment should follow a mild antiphlogistic course. "Occasionally, when there is much cerebral excitement, we have resorted to topical bleeding, but more frequently, even in such cases, we derive benefit from placing the feet in warm water; the application of cold, to the head; and the free movement of the bowels by laxatives."[50] Brigham reported that of 622 patients treated during the preceding year, only four had been bled.[51]

A Maine superintendent and former Democratic congressman, James Bates, wrote in the October 1850 issue of the *American Journal of Insanity* that irritation was sometimes the source of insanity, and irritation might lead to inflammation.[52] With regard to the implications of the presence of inflammation for the treatment of the patient, Bates observed, "Whether this condition [inflammation] is less frequent than formerly, may not be easy to determine; for some cause the treatment [of insanity] has undergone great change."[53] Though he acknowledged the occasional value of local bleedings with cups and leeches, he preferred "watching the recuperative action of nature" augmented by unobtrusive medical intervention.[54] Thus, even an older physician like Bates, who was sixty-one years old when he wrote these opinions, supported the trend away from antiphlogistic therapy.

---

[48] On the founding of the AMSAII, see Overholser, "Founding", and McGovern, *Masters of Madness,* pp 1–16 Information on Brigham and Earle is from E K H, *A Biographical Sketch of Dr Brigham* (Utica, New York n p., 1858), pp 27–40; and Sanborn, *Memoirs,* pp 94–95 For biographical information on the thirteen founders, see Overholser, "Founding", Malone, ed., *Dictionary of American Biography,* Kelly and Burrage, *Dictionary,* s v "Brigham, Amariah" These sources do not indicate that any of the other alienists visited Europe as part of their education Interestingly, Earle's cousin, Elisha Bartlett, was one of the foremost American proponents of the Paris school See Sanborn, *Memoirs,* pp 94–95 on the kinship of Earle and Bartlett. On Bartlett, see Erwin H Acknerknecht, "Elisha Bartlett and the philosophy of the Paris clinical school," *Bull Hist Med*, 1950, *24* 43–60

[49] See Malamud, "History of psychiatric therapies," chart 2

[50] [Brigham], "Medical treatment of insanity," p. 353

[51] *Ibid*

[52] James Bates, "Report on the medical treatment of insanity ," *Amer J Insanity,* 1850, 7 99 For biographical information on Bates, see Malone, ed, *Dictionary of American Biography,* s v "Bates, James" and *Biographical Directory of the American Congress* (Washington, D C. U S Government Printing Office, 1971), s v "Bates, James" Bates was a surgeon in the War of 1812, and he served one term as a congressman, from 1831 to 1833 He was superintendent at the Maine Hospital for the Insane from 1845 to 1851, and he resumed the general practice of medicine from 1851 to 1882

[53] Bates, "Report," p 99

[54] *Ibid*, p 101.

The last major discussion among alienists of bloodletting for insanity seems to have been a 119-page paper written in 1854 for the *American Journal of Insanity* by Pliny Earle.[55] Earle, who had great faith in the value of compiling a large amount of data to answer scientific questions, was troubled by the widespread use of general bloodletting by general practitioners. He opened the paper by juxtaposing the antiphlogistic notions of Rush and those of three modern asylum superintendents. Rush, he said, had divided insanity into four classes (mania, monomania, melancholia, and dementia) and had advocated venesection in the first two. On the other hand, at the Utica asylum, "not one ounce" of blood had been taken from 825 patients in the preceding year, and two other large American hospitals had cared for more than 1800 patients without resorting to either general or local bleeding. Earle rightly observed that the views of Rush and the views of leading superintendents were incompatible, even though Rush's work had had a circulation among general American physicians "more extensive than that of the works of all other Authors upon mental disorder."[56] Earle then analyzed the opinions of 136 authorities upon the subject. The full gamut of opinion is represented in Earle's compilation, and Earle's analysis of the opinions is remarkably dispassionate. Based on his own experience and his evaluation of the reasoning of the other authorities, Earle concluded that cases requiring venesection were very rare, and that, even where local bleeding was indicated as a means of "equalizing the circulation," treatment should be by other means where possible. Thus, by the mid-1850s, both general and topical bloodletting were eschewed by influential alienists. Other depletive measures such as purgatives and emetics were also increasingly neglected.

Yet, many general practitioners apparently continued to use such treatments. As late as 1857, Earle wrote:

> [Rush's] theories and principles, and the method of treating recommended by him (frequent and copious bleeding), are still to a very considerable extent in vogue over a vast extent of inland territory in America When physicians for the care of the insane began to denounce venesection, they were confronted by what was considered the paramount authority of Dr. Rush They were told, "You crazy doctors ride hobbies," as if Dr Rush were not as liable to hobby-riding as Dr Ray or Dr Bell [prominent alienists]. . . . I believe that Dr. Rush's theories are annually consigning hundreds prematurely to the grave; . . while the book which inculcates them [*Medical Inquiries and Observations Upon Diseases of*

---

[55] Pliny Earle, "Bloodletting in mental disorder," *Amer J Insanity*, 1854, *10* 287–405, Pliny Earle, *An Examination of the Practice of Bloodletting in Mental Disorders* (New York Samuel S and William Wood, 1854)

[56] Earle, "Bloodletting," p 287

> *the Mind*] is probably to be found in more libraries than all other books on the same subject[57]

Asylum superintendents in the first half of the nineteenth century strongly challenged the common medical assumption that general bloodletting was of major importance in the treatment of mania, and they were able to mount this challenge credibly because they combined medical and moral therapy for insanity into a therapeutic system that was acknowledged as successful by the general medical community. They had both the experience in treatment and the theoretical knowledge necessary to justify their approach.

TOWARD A PHARMACOLOGICAL APPROACH TO THE MIND

American alienists used remedies they believed were efficacious. The absence of a generally agreed upon theory of insanity did not keep them from treating their patients. Antiphlogistic therapy declined because, first, many patients fared poorly when treated by general venesection, and, second, a variety of theoretical considerations led physicians to believe that inflammation was not usually present in insanity. Accompanying the decline in depletive measures was an increased reliance upon drugs, particularly sedative drugs, to treat patients whose mental disorders made them unmanageable. A number of centrally acting agents, some new, were being used in practice in the 1830s and 1840s, and during the 1850s a new and intense interest in the use of drugs to affect the mind came to the fore.

Contemporary doubts about antiphlogistic therapy, as well as a desire to come to some new understanding of madness which would permit a more rational treatment approach, are reflected in the personal and published writings of John M. Galt II, superintendent of the Eastern Lunatic Asylum (ELA) in Williamsburg, Virginia. Galt, a pedantic and compulsive man, compiled a massive collection of abstracts and notes, titled *The Treatment of Insanity* (1846), from the world literature on the medical management of mental disorders.[58] As superintendent of the ELA, Galt was in a particularly difficult position. His hospital, unlike many of the northern institutions (and unlike the Western Lunatic Asylum at Staunton, Virginia), admitted a large proportion of the chronically and severely mentally ill, and, therefore his "cure rate," the statistic so important to legislators and to other superintendents, was not very impressive.[59] Not surprisingly, Galt engaged in a great deal of thought and speculation about the theory, practice, and efficacy of medical and moral treatment for the insane.

---

[57] Quoted in Sanborn, *Memoirs*, pp 144–45 For similar remarks indicating superintendents' dissatisfaction with community physicians' use of bleeding, see *Ninth Annual Report of the Trustees of the State Lunatic Hospital at Worcester* (Boston Dutton and Wentworth, 1842), p 79, *Twelfth Annual Report of the Trustees of the State Lunatic Hospital at Worcester*, pp 70–81, "W," "Insanity," *Boston Med Surg J*, 1837, *16* 323–30

[58] John M Galt II, *The Treatment of Insanity* (1846, reprint, New York Arno Press, 1973).

[59] Dain, *Disordered Minds*, pp 115–16

Galt considered his approach to be based on empiricism, although his discussions of treatment were deeply influenced by his own theoretical perspective. While his own use of depletive bleedings was restrained, Galt believed that bleedings could sometimes be effective in the early treatment of insanity. An entry from his medical commonplace book of 1847 reflects his efforts to come to a theoretical understanding of insanity which would enable him to explain both the apparent effectiveness of bleeding early in mental disease and the efficacy of sedatives and tonics. Galt's discussion rested primarily on a conception of nervous energy which owed much to Cullen, and on a phrenological understanding of the relationship between mental and bodily functions.

> In the maniacal passion if there be at first an increase in the nervous energy[,] which I believe to be the case, there must be also subsequently a decrease Hence it should follow that in the first portion of the disease, bloodletting is useful together with other nervous sedatives, and perhaps opium is good here in large doses by acting so suddenly as to prostrate the energy, instead of acting as a stimulant, which might be the case, were it given in smaller doses. It [opium] would not do in melancholia or cases of longstanding so well; for it might disturb the secretions. In melancholia I should think stimulant tonics would be of service. I believe that we should act towards lunatics pretty much as towards others—not attending to those things which particularly constitute the difference between them.[60]

In his theoretical speculations about drug action and the relationship between physical and mental therapy, Galt resisted dividing treatment into strict categories of "moral" and "medical." In the 1842 ELA annual report, he wrote: "The treatment of insanity may be divided into two parts, moral and medical: they however melt into each other, and when we attempt to analyze the effects of their separate agents, we sometimes find them to act in both ways."[61] Cullen had taught that the effect of an opiate was to induce a marked decrease in "nervous excitement." But, Galt explained, "opiates also act morally, by withdrawing the mind from its delusions, either in the sleep which they produce or in that state of drowsiness approaching to it." Thus, in Galt's mind, medicines for madness had to be applied according to an individual patient's symptoms, with regard for the physical underpinnings of the disorder, but also with a consideration of the moral effect of medical agents and the physical effects of moral interventions.

The alienists relied upon both plant and mineral remedies to treat insanity. Though the alkaloids were being isolated during the period under discussion, only a few were actually used by alienists in preference to crude plant preparations.[62] Two main functional classifications of drugs for insanity persisted into the second half of the nineteenth century· sedatives and tonics. That these drugs should persist was likely from both a theoretical and an empirical standpoint. Theoretically, the classifications of narcotic and tonic continued to draw upon ideas of subduing or stimulating the body Empirically, medicinal sedatives would have been at least as effective as the depletive remedies of catharsis and bleeding but would not have involved the same risks, for sedating drugs could be used for long periods of time without risk of death. Bleeding, on the other hand, was an inherently risky business.

---

[60] GFP I, MsV 119, medical commonplace book, 1847

[61] *Report of the Board of Directors of the Eastern Lunatic Asylum for the Year 1842* (n p , n.p , 1843), p 9 All the quotes cited in this paragraph are on p 9 of the *Report*

Sedatives were among the most popular drugs for the treatment of mania. Alienists often preferred opium or its alkaloid derivative, morphine. The frequent use of opiates after the 1830s represented a marked departure from the practice of Rush, who seldom used opium for mania and believed that it had "bad effects" in the deranged patient.[63] As Rush's theories of madness lost favor, however, the drug came into wider use. Evans and Porter suggested in 1836 that opium had a doubly beneficial effect, since it not only acted as an anodyne (an agent providing emotional relief),[64] but also equalized the circulation of blood to various areas of the brain.[65] Amariah Brigham wrote that he used opium with great success in many of his patients, though he advocated giving only judicious doses of the drug.[66] Samuel Woodward believed that opiates were the most useful of all sedatives in treating acute mania, and he advised liberal dosing but cautioned that the drug must be withdrawn from the patient slowly to prevent adverse effects.[67] In an article published in 1850, John Allen, the superintendent of the Kentucky state asylum at Lexington, was enthusiastic about the use of opiates in mania. He thought they might well be as specific a treatment for that disease ás mercury was for syphilis. "In many instances," he wrote, "I have witnessed the apparent warfare between the remedy and disease. As the remedy was withdrawn, the disease advanced; as it was pushed, the disease receded, until its last hiding place seemed to be occupied by the remedial forces."[68] Perhaps Allen would have benefited had he more fully considered Woodward's observations concerning the adverse effects of rapid opiate withdrawal.[69] Opiates then, were of great importance for most alienists.

---

[62] For an account of early nineteenth-century pharmacology, see Chauncey Leake, *An Historical Account of Pharmacology to the Twentieth Century* (Springfield, Illinois Charles C Thomas, 1975), pp 119–39

[63] Rush, *Medical Inquiries,* p 200

[64] "Opium is habitually employed by many with a view to its exhilarating and anodyne influence" (Wood and Bache, *Dispensatory,* 10th ed [Philadelphia Lippincott, Gramso, 1854], p 542)

[65] Evans and Porter, "Reports of cases," p 102

[66] [Brigham], "Medical treatment of insanity," pp. 355–56

[67] Woodward, "Observations on the medical treatment of insanity," pp 12–15

[68] John R. Allen, "On the treatment of insanity," *Amer J Insanity,* 1850, *6* 281

[69] We know Allen was familiar with at least some of Woodward's remarks on opiates, because he quoted them in his paper (*ibid,* p 278)

Asylum physicians used narcotics other than opium in their therapeutics. The term *narcotic* was much more broadly defined in the nineteenth century than in the twentieth, and included not only opium and morphine, but also hyoscyamus (henbane, contains scopalamine), Datura stramonium (jimsonweed, contains primarily atropine), Conium maculatum (hemlock, contains piperadine derivatives, including coniine, which can cause weakness and paralysis), and camphor.[70] The effect of these drugs was to lessen an agitated patient's activity. Theoretically, asylum physicians viewed narcotics as ameliorating the irritation of the brain.[71] Hyoscyamus was a sedative used for mania in a manner similar to the way morphine was used. Alienists used Datura stramonium to treat mania, and they used Conium (particularly in combination with iron, quinine, or silver nitrate) to treat melancholia and other diseases thought to involve the digestive organs.[72] Certain superintendents thought hashish and chloroform also provided beneficial effects in some cases.[73]

Asylum physicians used tonics to "replete" the system following antiphlogistic depletion, to counter the physical weakness produced by maniacal excitement,[74] or to treat the presumed "nervous exhaustion" of melancholia. Iron, Peruvian bark, silver nitrate, and zinc sulphate all served as tonics in treating insanity during this time.

Galt's management of a Captain C., described in the ELA treatment records, illustrates the way in which drug treatment aimed at symptoms but informed by theory was carried out from 1844 to 1850.[75] Of the patient's prior history we know nothing, but, on 22 June 1844, Captain C. was admitted to the hospital and given a diagnosis of mania. The initial issue in treatment was how to control the patient's maniacal "excitement."

> July 1844 [Captain C] = Warm bath & purges from June 23rd [day after admission], shower bath & laudanum from June 25th. 1. Less excited as a constancy, though of course as a recent case, more or less so. 2. Much calmer than has been. 3. Calm. Very much excited at night, as exhibited in loud [?] & talking 4.

---

[70] Information derived from Robert H Dreisbach, *Handbook of Poisoning* (Los Altos, California Lange Medical Publications, 1980), William A. R. Thomson, ed., *Medicines from the Earth A Guide to Healing Plants* (New York: McGraw-Hill, 1978), Alfred Goodman, Louis Gilman, and Alfred Gilman, *Goodman and Gilman's The Pharmacologic Basis of Therapeutics*, 6th ed (New York. Macmillan, 1980)

[71] *Twelfth Annual Report of the Trustees of the State Lunatic Hospital at Worcester*, p 73

[72] *Ibid*, p 77

[73] [Brigham], "Review of *Du hachisch et de l'aliénation mentale études psychologiques*, par J Moreau, etc," *Amer J Insanity*, 1845–46, *2* 275–81 Brigham noted that he had obtained some hashish from a medical colleague and given it to some of his patients, finding it to be "a very energetic remedy," though some patients felt intoxicated, others weak and nauseated, and some temporarily "insensible and cataleptic stuporous " Woodward was dubious about its value (see Woodward, "Observations on the medical treatment of insanity," p 10) Brigham later became disenchanted with the drug (see "Proceedings," *Amer J Insanity*, 1859, *16* 89) On chloroform, see, for example, A. T H Waters, "On the use of chloroform in the treatment of puerperal insanity," *Amer J Insanity*, 1857, *13* 341–53 Galt used ether extensively in the treatment of one patient, whose case is recorded in GFP I, MsV 120, and GFP II, folders 27–37

[74] *Twelfth Annual Report of the Trustees of the State Lunatic Hospital at Worcester*, p 80

[75] Information on Captain C has been assembled from the patient register of ELA and Galt's monthly clinical notes, GFP II, folders 27–29 and 31–37

> Very obstreperous, moved from his room to the strongest [room] 5 Complaining, but not so much excited. Laudanum raised from 40 to 60 measures. 6. Cramped in the legs Laudanum up to 70 measures 7 8 9 [illegible] 10 11 12 Seems to have little appetite Rhubarb gr xx at night 13 14 15 Laudanum to 50 measures. 16. 17 18 I think a little excited 19. Still so, moved last night. 20. 21. More and more excited 22 23 Shall increase his laudanum & give him a purge 24. Asks to stop medicine & that he will behave well 25 More excited than ever, decreased laudanum on yesterday to 90 measures. Increased it again today to 100 26 Still excited 27 do 28 29. Still a little excited 30 31. Exceedingly excited Put him in a dark room.[76]

> August 1844 [Captain C.] = Warm bath & laudanum from June 23, shower bath irregularly from 25th June, purge also irregular 1. Put in a dark room yesterday, being much excited, morphia instead of laudanum 2 Making much worse 3. Morphine to gr ii; 4 Quiet enough to be moved back from dark room[77]

Thus, the initial baths and purges (presumably with the rhubarb mentioned first on the twelfth) were immediately followed by daily administrations of laudanum in rapidly increasing doses. The patient responded to this vigorous medication regimen with a pledge to behave well if the medicine was stopped, but his request was not honored. At the end of August, Galt substituted morphine for laudanum, but subsequent notes indicate that this trial failed and Galt reinstituted the laudanum. In the subsequent four months, Galt administered several different sedatives—opium elixir, black drop ("vinegar of opium," apparently used in this case both alone and in combination with laudanum), and hyoscyamus—in an effort to obtain better control of the excitement, but the clinical result was poor. As adjunctive treatment, he also placed the patient on a diet of milk, peaches, and lemonade. Captain C. became weakened from this asylum regimen, and Galt treated the weakness with boneset (*Eupatorium perfoliatum*) as a tonic. This did not sufficiently alleviate the depleted state or stimulate Captain C.'s appetite, so in October, Galt substituted quinine, also administered for its tonic qualities and placed a blister.[78] In December, Galt observed in his notes that the patient was emaciated, but by the beginning of January, things were beginning to improve.

> January 1845.... = Since the latter part of last month, medicine consisting of black drop, laudanum & quinine—finally carried to 40 minims of the first, 150 of the second, and three grains of the quinine. He was also given a fiddle again. Since 19th confined very little to his room, some days however very noisy when placed in his room. Mostly on the best passage 31 Madness exhibiting itself in

---

[76] GFP II, folder 32

[77] *Ibid*, folder 33

[78] "In numerous instances a tonic or strengthening mode of treatment is evidently demanded Perhaps of all medicines administered here with this end, most use is made of the Thoroughwort (Eupatorium perfoliatum) [boneset] an indigenous plant. We have large quantities of it gathered every year" (*Report of the Board of Directors of the Eastern Lunatic Asylum for the Year 1842,* p 19) Boneset does not seem to have been widely used in American asylums

> no way different from the primary period Here there has been apparent benefit from persisting throughout excitement of a high character . . [in] the use of large doses of tonics and narcotics[79]

In February the patient again became excited, so Galt continued similar medical and environmental manipulations throughout the spring and summer. In September, Galt tapered the doses of black drop, laudanum, and quinine, and by late September, he had succeeded in substituting boneset for the narcotics and quinine. There is no record of Captain C.'s treatment during 1846; when treatment records for him reappear, in July 1847, he was being given boneset, tincture of ginger, and mint julep. In December of 1847, Galt noted: "Continues in an improved condition of mind & body," and in February 1848 the boneset was discontinued. There are no more entries concerning him after an April 1850 entry stating discouragingly. "23. Ordered blue mass [blue pill, a mild mercury compound often used as an alterative] & rhubarb, but he refused them—very suspicious."[80] Thus, Galt groped his way through the medical treatment of this patient, treating symptoms in a theoretically informed manner but continually struggling with the reality that the direct positive consequences of his medical therapeutics were usually transient, and that more long-lived improvement was often only tangentially associated with a particular therapeutic intervention.

The clinical doubt created by the asylum physicians' theoretical uncertainty is reflected at an organizational level in the discussion of a paper on the medical treatment of insanity delivered to the annual meeting of the AMSAII in 1857 by M. H. Ranney, resident physician at the Blackwell's Island asylum in New York. Ranney had suggested at the 1856 AMSAII meeting in Cincinnati that a committee be appointed to report on the medical treatment of various forms of insanity.[81] At the 1857 AMSAII meeting in New York, however, Ranney reported that he had been unable to communicate with the other two members on the committee and that the views presented in his paper were his own. The remarks concerning his paper therefore reflected a certain animosity, particularly from the other members of the committee.[82]

Ranney divided insanity into three types: acute mania, melancholia, and dementia, though he did not consider this classification comprehensive[83] For treating mania, he recommended cathartics when the digestive tract was disordered, and vomits, particularly by antimony and potassium tartrate, if the patient was "plethoric." If the patient continued to be violent, croton oil, a "counter-irritant," should be applied behind the ears to cause eruption of the skin. Since this treatment usually caused the mania to subside, morphine should then be given and a full diet instituted. The diet should consist of beer and "milk-punch" and rich meals. Iron carbonate, potassium iodide, and iodine tonics were also of use. For melancholia, he suggested a number of stimulant remedies, including tonics. Blisters sometimes helped, partly because they might relieve congestion of the blood vessels of the brain, but principally as a "substitution of a real for an imaginary trouble." Dementia benefited from good moral treatment, a nutritious diet, and, occasionally, skin irritants, particularly tartarized antimony Ranney concluded his paper by staunchly defending the role of medicines in the treatment of insanity in a most revealing manner.

---

[79] GFP II, folder 27

[80] *Ibid*, folder 30

[81] "Proceedings," *Amer J Insanity*, 1856, *13* 84

[82] "Proceedings," *Amer J Insanity*, 1857, *14* 95–105

[83] M H Ranney, "The medical treatment of insanity," *Amer J Insanity*, 1857, *14* 64–68

> Adopting the somatic theory [of insanity] . that the material part, the brain, is the seat of disorder, while the immaterial [the mind] is not subject to change, there can be no reason why medicines should not exert a controlling influence over this disease Not only is the physical organization [of the brain] directly affected by medicinal agents, but over the mind itself the manifestations of the immaterial through the medium of the brain is subjected to their restoring influence. Moral treatment is an important auxiliary to recovery. But I would ... carefully investigate ... the influence of medicine on the manifestations of the mind, that our noble profession might not become simply an art.[84]

A small furor erupted among the participants in the discussion that followed the presentation of Ranney's paper. The two members of the committee who had not been consulted by Ranney, Dr. McFarland and Dr. Tyler, both objected to the paper, as did many others, particularly with regard to Ranney's use of antimony in the treatment of mania. The antimony preparation to which Ranney referred was known also as tartar emetic, and general physicians considered that it acted, according to the dose, as an alterative, a diaphoretic, a diuretic, a purgative and an emetic.[85] McFarland said he was quite surprised to hear that Ranney used the drug in uncomplicated mental disease, since McFarland thought "that it was lying in the same grave where venesection had been buried long ago"[86] Tyler remarked that he usually found "a glass of porter or brandy-punch" considerably more efficacious than antimony, and that he commonly used a combination of morphine and conium to sedate patients. He had also used sulphuric ether to good effect, he said[87] Thomas S. Kirkbride, superintendent at the Pennsylvania Hospital for the Insane, said he used tartarized antimony in smaller doses than Ranney but had found it useful in combination with morphine Kirkbride's use of a smaller dose suggests that he was using the drug more as an alterative to change the body's morbid state than as an emetic to cause vomiting.[88] A Dr. Fisher, by contrast, said he much preferred antimony to the lancet in the treatment of physical disease, and that he intended to test Ranney's method, since he had despaired of the use of anodynes (presumably opium or morphine) in treating mental illness.[89]

---

[84] *Ibid*, p 68

[85] Wood and Bache, *Dispensatory*, 1854, p. 873

[86] "Proceedings," *Amer J Insanity*, 1857, *14* 96

[87] *Ibid*, p 99

[88] *Ibid*, pp 100–101 Tomes discusses Kirkbride's use of drugs in *Generous Confidence*, pp 193–97

A number of physicians seemed to associate the use of antimony with venesection, probably viewing both as depletive measures, and there ensued a round of condemnations of venesections (at the instigation of Earle). The sentiment of the meeting was decidedly against very "active" measures such as these, and most superintendents expressed confidence in sedative drugs and tonics for the treatment of mania.[90]

The incident reiterates the complexity of medical thinking about the treatment of insanity in the late 1850s. With no firm physiological basis for their use of drugs, and with no clear conception of the pathology of insanity, alienists were left only with a feeling that the depletive measures of the past were more harmful than the non-depleting drug therapy they currently used. An interplay between theoretical considerations and clinical empiricism determined their therapeutic approach, but, given the limited efficacy of their drug treatments, this method of arriving at a therapeutic strategy was inadequate to produce a consensus on the use of remedies. This lack of a therapeutic consensus contributed substantially to the increasing dissatisfaction with the asylum physicians' treatment of insanity among other medical practitioners.

This dissatisfaction was reflected in a review by "W.H.," presumably William Hammond, in the *American Journal of the Medical Sciences* in 1858.[91] Reviewing favorably a British textbook on mental disorders that later became popular in America, the writer used the occasion to attack American alienists:

> Insanity cannot be fully understood by one who does not study the mutual influence of mind and body in the whole range of disease. The unnatural separation of this subject from all other disease, engenders narrow and erroneous ideas We apprehend that a large proportion of those practitioners who have had charge of retreats for the insane, have committed this error to a greater or less extent.[92]

W.H. went on to complain that there was very little common ground between "the profession at large" and "the physicians of retreats." While there is considerable room to doubt that physicians for the insane saw themselves as being outside of the mainstream of medicine, it is evident from W.H.'s remarks that, for many reasons, dissatisfaction with the care of the insane existed in certain quarters of the American medical community. This dissatisfaction eventually produced substantial changes in mental health care.[93]

---

[89] "Proceedings," *Amer J Insanity*, 1857, *14* 97

[90] Physicians at this late date viewed bloodletting as a sedative, and its use in mania was probably more related to this view than to the other view, that bloodletting was antiphlogistic On bloodletting as a sedative, see Robley Dunglison, *General Therapeutics and Materia Medica*, 2 vols (Philadelphia Blanchard and Lea, 1853), 2 158–71

[91] W H, "Review of *A Manual of Psychological Medicine* by John C Bucknill and Daniel H Tuke," *Amer J Med Sci*, 1858, *36* 414 William Hammond is listed as one of the contributors to the journal, the only other W H listed is a surgeon, who presumably would have had less interest in the topic

[92] *Ibid*, p 414

Regardless of these later changes, however, the evidence presented here demonstrates that the alienists' approach to medical therapy from 1820 to 1860 was the product of many factors. To view alienists and their treatments simply as functions of the asylum environment or of the prevailing social forces of the day distorts the rich complexity of the situation. Though external forces undoubtedly affected the treatment of madness in the early nineteenth century, the decline of antiphlogistic therapy and the increasing reliance upon drugs appear to have occurred largely because of practicing physicians' concern with the theory and practice of medicine.

---

[93] On this conflict see Grob, *Mental Institutions and American Society*, pp 50–55, Bonnie Ellen Blustein, "'A Hollow Square of Psychological Science' American Neurologists and Psychologists in Conflict" in Scull, ed., *Madhouses*, pp 241–70

THE DIAGNOSTIC DREAM IN ANCIENT MEDICAL THEORY AND PRACTICE*

Steven M. Oberhelman

The purpose of ancient dream-interpretation—medical, popular, or religious—was the accurate determination of a dream's significance before the outcome of the dream occurred.[1] The diviner needed to prognosticate imminent events for public officials or individuals; the popular dream-interpreter to satisfy the curiosity of his paying customers; the physician to identify the symptoms and course of diseases. Thus, the dream was considered both a harbinger of good or evil and the medium by which the good or evil was expressed,[2] not only by the Asclepian priests and the common people, but also by the philosophers, physicians, and members of the aristocracy. The exceptions were the Epicurean school of philosophy, which maintained a materialistic view of dreams, and the Methodist medical sect, which was influenced by Epicurean philosophy and therefore rejected this concept of the significance of dreams.[3]

That a belief in the validity of dreams was entrenched in Greco-Roman culture has seemed to some moderns inconsistent with the perceived "rational" nature of ancient philosophy, science, and, especially, medicine. But, as this paper will demonstrate, the ancient physician accepted dreams for their diagnostic and prognostic utility. While we would classify medical

---

*This article is a revised version of a paper delivered before the Society for Ancient Medicine in Washington, D C , on 30 December 1985 I extend my deepest thanks to the Society's president, John Scarborough, for the kind invitation to address the Society on this subject. This paper has benefited greatly from the helpful criticisms and suggestions of the anonymous referees and editors of the *Bulletin,* they have improved every page

[1] Carl Behr, *Aelius Aristides and the Sacred Tales* (Amsterdam Hakkert, 1968), pp 170–71

[2] The standard reference on dreams in antiquity is now R. G A. Lieshout, *Greeks on Dreams* (Utrecht. HES Publishers, 1980), which has extensive bibliographies and indexes Primary sources are listed in that volume on pp 263–64 Ancient popular dream-books are Roger Pack, ed , *Artemidorus of Daldis,* Oneirocriticon *libri V* (Leipzig Teubner, 1963), and Darius Del Corno, *Graecorum de re onirocritica scriptorum reliquiae,* Testi e documenti per lo studio dell' antichità, 26 (Milan Varese, 1969) The Byzantine dream-books, to which references are made throughout this paper, are discussed in my articles "Prolegomena to the Byzantine *oneirokritika,*" *Byzantion,* 1980, *50* 487–503, and "The interpretation of dream-symbols in Byzantine oneirocritic literature," *Byzantinoslavica,* 1986, *47* 8–24, and in my book *The* Oneirocriticon *of Achmet* (Binghamton State University of New York Press, forthcoming) Citations to Artemidorus's text refer to the translation by Robert White, *The Interpretation of Dreams The* Oneirocritica *by Artemidorus* (Park Ridge, New Jersey. Noyes Press, 1975)

[3] For the Epicureans on this point, see Cyril Bailey, *Titus Lucretius Carus,* De rerum natura, 3 vols (Oxford Clarendon Press, 1947), 3 1265–79 and 1290–1301, and Diskin Clay, "An Epicurean interpretation of dreams," *Amer J Phil ,* 1980, *101* 342–65 For the Methodists, see Galen, *On the natural faculties,* trans Arthur Brock, Loeb Classical Library (London Heinemann, 1916), p 47

Bull Hist. Med 1987. *61* 47–60

diagnosis through dreams as superstitious quackery, if not magic, the ancients did not[4] True, ancient physicians rejected demonism, magic, and incantations, for these lay outside of natural science and rational theology. But they did not repudiate dreams, dream-cures, or the incubations at the Asclepian healing sanctuaries The significance of the reality of diagnostic and even mantic dreams was accepted by physicians from Hippocrates to Galen; the fact that the Empiricists acknowledged the significance of dreams is telling,[5] for this school recognized no principle except proof by experience.[6] As stated earlier, only the Methodists like Soranus denied the significance of dreams, and they did so because of the Methodists' Epicurean background.[7]

The sources of dreams, according to the ancients, were many.[8] The gods sent some dreams to suppliants at such sanctuaries as Epidaurus, Pergamum, and Oropus, or to their favorites to warn or aid them. The soul itself had the ability to prognosticate events, while foods, drinks, anxiety, fear, and corporeal activities like nocturnal emissions also caused dreams. The philosophers held various views on dream-causation, from the Epicureans' theory of *eidōla,* through Plato's proto-Freudian discussion of the *id* in book 9 of the *Republic,* to Aristotle's hypothesis of coincidences and exaggeration of stimuli during sleep (*On prophecy in sleep*). Finally, the physicians considered the source of medically significant dreams to be the imbalance of the humors or pathological states in the dreamer's body.

To the ancients, dreaming was a cognitive process: one did not *dream,* one *saw.* This is clear from the constant use by ancient writers on dreams (e.g., Aristotle in his *On dreams* and the writer of the Hippocratic *Regimen* 4) of the verbs *blepō, oraō,* and *theaomai,* which are active sensory verbs. The implication of such terminology is that the dream, regardless of its source, was perceived by a cognitive process similar to that which occurs during one's waking state.

Ancient dream theory was carried into minute details. Beginning with Homer in the eighth century B.C., categories and classifications of dreams were worked out by philosophers, medical writers, and literary authors. Records of dreams and their eventual outcomes were compiled in treatises called *oneirocritica* (*Books on the interpretation of dreams*) to aid interpreters in deciphering the dreams of those who consulted them. Besides fragments from the dream-book of the fifth-century B.C. philosopher Antiphon,[9] our earliest extant dream-book is the *Regimen* 4, also called *On dreams,* attributed to Hippocrates and datable most probably to the fourth century B.C.[10]

---

[4] Ludwig Edelstein, "Greek Medicine and Its Relation to Religion and Magic," in *Ancient Medicine Selected Papers of Ludwig Edelstein,* ed Owsei Temkin and C Lilian Temkin (Baltimore Johns Hopkins Press, 1967), pp 216–26 and 235–39

[5] For the Empiricists' views on dreams, see S M Oberhelman, "Galen, *On diagnosis from dreams,*" *J Hist Med*, 1983, *38* 36, n 3

[6] Cf Galen, *On diagnosis from dreams* (hereafter *Dreams*), in *Claudii Galeni opera omnia,* ed K G Kuhn, 22 vols (1821–33, reprint, Hildesheim Georg Olms Verlag, 1964–65), 6 833 (hereafter Kuhn)

[7] Soranus *Gynecology* 1 2 4 (= Owsei Temkin, trans , *Gynecology of Soranus* [Baltimore Johns Hopkins Press, 1956], p 7)

[8] The best discussions of dream theories in antiquity are Behr, *Aelius Aristides,* pp 171–95, and A H M Kessels, "Ancient systems of dream-classifications," *Mnemosyne,* 1969, *22* 389–424 To Behr's comments we should add the evidence of stones and certain vegetables as agents of controlling dreams, not merely causing them See Marbode of Rennes, *De lapidibus,* ed and trans John Riddle, *Sudhoffs Archiv,* suppl 20 (Wiesbaden Franz Steiner Verlag, 1977), Stones no 1 (p 35), 9 (p 47), 19 (p 57), 28 (p 66) See also Dioscorides, *De materia medica,* ed. and trans John Riddle (Austin University of Texas Press, 1985), 2 136 (p 27), 2 146 (p 66), 5 6 (p 143) I owe these references to John Riddle, who was kind enough to correspond with me on this subject.

These ancient sources preserve a complex terminology and classification of dreams.[11] The major categories were as follows: the *oneiros,* which was an allegorically predictive dream whose meaning could be deciphered only by a dream-interpreter;[12] the *horama,* a straightforward predictive dream, in which the dream's outcome corresponded exactly to the dream's contents;[13] the *chrēmatismos,* a dream-oracle in which a god appeared to the dreamer and foretold a future event or healed him;[14] the *phantasma,* a nonpredictive dream containing a frightening image; and the *enypnion,* a dream that had no predictive value but that signaled the effects of the passions of the body, of certain foods, or of bodily disease.[15] Whereas diviners neglected the *enypnion* because it did not predict the future, physicians considered it a diagnostic indicator of illness.[16]

The medical writers followed these categories and classifications, but used their own variations. The author of the *Regimen* 4 discusses two main types of dreams. divine dreams, which foretell for the government or individuals future events, good or bad, and dreams that arise from the dreamer's bodily condition:

---

[9] The latest and most thorough discussion of Antiphon's dream-book is Lieshout, *Greeks on Dreams,* pp 217–29

[10] C Fredrich, *Hippokratische Untersuchungen* (Berlin Weidmann, 1899), pp 217–23, A. Palm, "Studien zur hippokratischen Schrift *peri diaitēs*" (Ph D diss , Tubingen, 1933), pp 97–124, Robert Joly, *Recherches sur le traité pseudo-hippocratique "Du régime"* (Paris Les Belles Lettres, 1960), *idem, Hippocrate, "Du régime"* (Paris Budé series, Les Belles Lettres, 1967), pp xii–xiv, Hans Diller, "Der innere Zusammenhang der hippokratischen Schrift *De victu,*" in *Kleine Schriften zur antiken Medizin,* ed. G Baader and H Grensemann (Berlin De Gruyter, 1973), pp 71–88 I leave open the question of the authorship of *Regimen* 4.

[11] This system is found in fullest form in Macrobius, *Commentary on the dream of Scipio* 1 3 2–12 (= William Stahl, trans , *Macrobius Commentary on the Dream of Scipio* [New York. Columbia University Press, 1952], pp 87–92), and Artemidorus *Oneirocritica* 1 1–2 and 4 1

[12] Examples of these consultations may be found in Achmet's dream-book, cited by the chapter number of the Greek edition by Franz Drexl (*Oneirocriticon Achmetis* [Leipzig Teubner, 1921]) 19, 20, 36, 46, 96, 139, 144, 147, 153, 176, 192, 199, 264 The lack of scruples among dream-interpreters in private sessions, however, surfaces in Artemidorus *Oneirocritica* 4 20 and 4 23, wherein Artemidorus advises his son to fabricate answers to impress his superstitious and gullible customers The only translation of Achmet's work is my *The* Oneirocriticon *of Achmet* All the Byzantine dream-books contain a wealth of information on folk medicine and folk remedies, they also preserve much ancient medical thought—for example, the many dietary regimens of *Regimen* 3 Achmet, who used Arabic sources, employs highly specialized medical terminology and discusses in detail human anatomy and scientific theories such as Aristotle's theory on human reproduction.

[13] Artemidorus *Oneirocritica* 1 2 and 4 1–2

[14] The Asclepian vision would be included in this category Artemidorus has a hopelessly confusing discussion of this category in which he classifies it under no fewer than three major divisions (*Oneirocritica* 1 6, 4 2, 4 22) *theopemptoi* ("god-sent" dreams), *merimnētikoi* ("anxiety dreams"), and medical dreams

[15] Subclassifications and subdivisions of these five types exist, but they are not relevant here. See Macrobius *Commentary on the dream of Scipio* 1 3 10–11 (= Stahl, *Macrobius,* p 90), and Artemidorus *Oneirocritica* 1.2–5

[16] For the medical dream in this context, see the literature cited by Behr, *Aelius Aristides,* pp 178–79, nn. 13 and 15 To Behr's bibliography, add Nikephorus *Dream-Book* prologue, 11 10–14, in F Drexl, "Das Traumbuch des Patriarchen Nikephoros," *Festgabe A. Ehrhard Beitrage zur Geschichte des christlichen Altertums und der byzantinischen Literatur* (Bonn and Leipzig Schroeder, 1922), pp 94–118

> Now such dreams as are divine, and foretell to cities or to private persons things evil or things good, have interpreters in those who possess the art of dealing with such things But all the physical symptoms foretold by the soul, excess, of surfeit or of depletion, of things natural, or change to unaccustomed things, these also the diviners interpret[17]

Herophilus in the fourth century B.C. divided dreams into three categories: *theopemptoi* (dreams from the gods), *physikoi* (predictive dreams of the soul concerned with future events), and *synkrimatikoi* (constitutional dreams, that is, dreams arising from the humoral conditions of the body).[18] Herophilus's first two categories were a refinement of the predictive dream, in that he acknowledged that the soul, and not just the gods (as the author of *Regimen* 4 stipulated), was capable of presaging events.

Galen's theories on dreams are more complex and reflect all of the categories discussed above.[19] Galen traced the cause of some dreams to waking-state thoughts: he stated that one's daytime thoughts will often reappear in one's dreams.[20] The images of other dreams are mere repetitions of what we are in the habit of doing during our waking state.[21] Others are prognostications by the soul, while others have as their origin the lack, excess, and quality of the humors.[22] Galen's belief in the god-sent dream, specifically the Asclepian vision, was apparent throughout his life, and is apparent in his work. When Galen was twenty and was afflicted with a subdiaphragmatic abscess, Asclepius ordered him in a dream to open an artery in his hand between his thumb and first finger and to let it bleed spontaneously. Galen reported that this procedure saved his life, and because of the dream, he became the god's servant.[23] Asclepius also commanded Galen through dreams not to go off to war with the emperor Marcus Aurelius,[24] and, later, to finish his work on the optic nerve.[25] Galen further writes of many efficacious cures wrought by Asclepius at the healing sanctuaries.[26]

---

[17] *Regimen* 4 87.1–8 Translations of the *Regimen* 4 are from the Loeb Classical Series of the Hippocratic corpus, 4 vols (London Heinemann, 1967), trans W H S Jones and E T Withington All other translations of Hippocrates are mine and are based on the ten-volume edition of Hippocrates by Émile Littré (Paris, 1839–61)

[18] Herophilus, quoted in Aetius *Maxims* 5 2 3 (= Hermann Diels, *Doxographi graeci,* 4th ed [Berlin De Gruyter, 1965], p 416) See also Kessels, "Ancient Systems," pp 414–24

[19] Galen, who was a contemporary of Artemidorus, makes a reference to him in *Commentary on Hippocrates' Regimen in acute diseases,* 15 (= Kuhn, 15 444)

[20] Galen *Dreams* (= Kuhn, 6 833) The same line of thought appears in Herodotus *Persian wars* 7 16 (= P Legrand, ed. [Paris Budé series, Les Belles Lettres, 1967]), Aristotle *On prophecy through dreams* 463a 22 (= W. D Ross, ed , *Aristotle Parva naturalia* [Oxford Clarendon Press, 1955]), Cicero *On divination* 1 45 and 2 140 (= R Giomini, ed [Leipzig Teubner, 1975])

[21] Galen *Dreams* (= Kuhn, 6 833), and Lucretius *On the nature of things* 4 962–72, with commentary ad loc in Bailey, *Titus Lucretius Carus,* 3 1296.

[22] Galen *Dreams* (= Kuhn, 6 835) "[W]hatever ill people see in their dreams or whatever they imagine that they are doing in their dreams will often indicate for us the lack, excess or quality of their humors " Cf *Regimen* 4 87 5–8

[23] Galen *Therapeutic phlebotomy* 23 (= Kuhn, 11 315)

[24] Galen *On his own books* 2 18–19 (= Kuhn, 19 18–19)

Thus, Galen's system of dream-classification was more complicated than that of the compiler of *Regimen* 4 who merely typologized dreams into divine and medically symptomatic visions. Galen acknowledged the divine dream-oracle and subdivided the divinatory dream into dreams derived from the prognosticative activity of the soul and dreams inspired by the beneficence of the gods, such as the dreams his father, Nikon, had which led to Galen's apprenticeship at Pergamum at the age of sixteen.[27] Dreams not predictive of future events were subdivided into two categories: those of no value, which only repeat our waking thoughts and actions, and those that occur in accordance with the humors of the body.

This last category of dream, the medico-pathological dream, is the subject of the remainder of this paper We possess ample testimony concerning such dreams from ancient medical writers: Hippocrates and the other writers of the Hippocratic corpus, especially the *Regimen* 4; Herophilus, the fragments of the Empiricists;[28] Rufus of Ephesus;[29] and Galen.[30]

The origin of the medical dream lies in the interplay between soul and body. According to the author of *Regimen* 4, the soul is divided into many parts and dispersed throughout the body. When a person is awake, the soul acts in conjunction with the body, albeit in a subservient role, to form one's true perception; but when the body is asleep, the soul performs all the actions of the body:

> When the body is awake the soul is its servant, and is never its own mistress, but divides her attention among many things, assigning a part of it to each faculty of the body—to hearing, to sight, to touch, to walking, and to acts of the whole body; but the mind never enjoys independence.[31] But when the body is at rest, the soul, being set in motion and awake, administers her own household, and of herself performs all the acts of the body For the body when asleep has no perception; but the soul when awake has cognizance of all things—sees what is visible, hears what is audible, walks, touches, feels pain, ponders. In a word, all the functions of body and of soul are performed by the soul during sleep [32]

[25] Galen *Use of parts* 10 12 (= Margaret T May, trans , *Galen on the Usefulness of the Parts of the Body*, 2 vols [Ithaca, New York. Cornell University Press, 1968], 2 490–91)

[26] Galen *Outline of empiricism* 10 (= Karl Deichgraber, *Die griechische Empirikerschule* [Berlin Weidmann, 1930], pp 78–79) and *idem, Differentiation of diseases* 9 (= Kuhn, 6 869)

[27] Galen *Therapeutic method* 9 (= Kühn, 10 609, cf Kuhn, 16 223, and 19 59) See also Vivian Nutton, "The chronology of Galen's early career," *Class. Quart*, 1973, *23* 162

[28] For the Empiricists, see Oberhelman, "Galen," p 36, n 3

[29] Rufus of Ephesus *Medical questions* 5 (= H Gartner, ed. and trans , *Rufus von Ephesos Die Fragen des Arztes an den Kranken* [Berlin Akademie-Verlag, 1962]) Rufus's passage on dreams is translated in Oberhelman, "Galen," pp 41–42

[30] Galen *Dreams* (= Kühn, 6 832–35) There is an extensive discussion of dreams elsewhere in Galen's corpus (*Commentary on Hippocrates' humors* 2 2 [= Kühn, 19 219–26]), however, the work is a Renaissance forgery See Oberhelman, "Galen," p 40, n 28

[31] This is elaborated further in *Regimen* 1 6–7

[32] *Ibid* 4 86 3–18

Galen expands on this by stating that, while the soul is in the interior of the body and has been removed from outside sensory perceptions, it is able to grasp what the conditions are throughout the body.[33] The images that the soul receives or senses are influenced by these conditions. For example, an excess of phlegm will cause images of coldness and moisture, and thus a person may dream that he is caught in a cold rainstorm.[34] Or, if the humors are foul smelling and putrid, or if there is too great an amount of feces in the bowels, the person may dream that he is sitting in a dung heap.[35]

The dream-images were important to the physician in his diagnosis and prognosis of the patient. Rufus states:

> One must make inquiries about sleep: whether or not the patient was sleeping, what his habits are with respect to sleep and wakefulness; and whether he has any visions or dreams For from these answers a doctor can make his inferences.[36]

Hippocrates echoes this in *Epidemics:*

> The following were the circumstances attending the diseases, from which I framed my judgments, learning the common nature of all and the particular nature of the individual, from the disease, the patient ... from [his] sleep or absence of sleep, the nature and time of dreams[37]

In *Regimen* he expands on this:

> For whatever the body suffers, the soul will perceive when vision is cut off [during sleep] . . The wise person will not let a disease go on, but will effect a cure whenever signs first appear.[38]

And, in *Humors:* "Signs ... include the dreams that the patient sees and whatever he does in his sleep."[39]

On the basis of the dream, exact regimens and medical treatments were prescribed. Galen writes:

> A certain wrestler dreamt that he was standing in a cistern of blood and was scarcely able to keep his head above the level of blood. I took this dream as an indication of excess blood in his body and recommended that he undergo bleeding.[40]

The author of the *Regimen* 4 lists many regimens and diets in accordance with the interpretation of dreams. Two may be cited here as examples.

---

[33] Galen *Dreams* (= Kuhn, 6 834)

[34] *Ibid* 6 832

[35] *Ibid* 6 835

[36] Rufus *Medical questions* 5

[37] Hippocrates *Epidemics* 1 23 (Littré) Cf *idem, Ancient medicine* 1 10

[38] Hippocrates *Regimen* 3 71

[39] Hippocrates *Humors* 4 (Littré) Other references to diagnosis from dreams in the Hippocratic corpus are *Epidemics* 5 57, 6 5, 6 9, *Airs* 14, *Hebdomads* 45, *Internal affections* 48

[40] Galen *Dreams* (= Kuhn, 6. 834) Cf Rufus, *Medical questions* 5, and *Regimen* 4 90 28–31

> Monstrous bodies that are seen in sleep and frighten a person indicate an excess of unaccustomed food, a secretion, a bilious flux and a dangerous disease What is necessary is an emetic, followed by a gradual increase, for five days, of the lightest food possible, neither a lot of it nor acrid, neither dry nor hot, with such exercises as are most natural, except for walks after dinner. The dreamer should take hot baths and rest, and avoid the sun and cold.[41]

> It is not good to see the earth scorched or black, there is a danger of catching a violent or even fatal disease, for it indicates excess of dryness in the flesh. What is necessary is to give up exercises and such food as is dry and acrid and diuretic. Regimen should consist of barley-water well boiled, light and scanty meals, copious white wine well diluted and numerous baths No bath should be taken on an empty stomach, the bed should be soft and rest should be abundant Pray to the Earth, Hermes and the Heroes[42]

Finally, Rufus relates the story of Myron, a wrestler of his home town, who seemingly was in good health and dreamt that he spent a whole night in a black marsh of fresh water. The next day, during his exercises, Myron suffered shortness of breath, heart palpitations, and paralysis of the limbs; shortly afterward, he died. Rufus complained about the ignorance of the trainer, for the dream had clearly indicated that Myron was in need of a massive evacuation of blood.[43]

Rufus was not alone in recording instances when someone was unable to distinguish between a medical dream and a prophetic or insignificant dream. Galen confesses making a mistake when a patient dreamt that one of his legs turned into stone. Galen interpreted this dream as pertaining to the man's slaves, for this was the traditional interpretation of the dream-symbol "leg" in oneirocritical literature.[44] It turned out, however, that the man simply became paralyzed in that leg.[45]

Galen, like other physicians, reserved the right to interpret medical dreams. It was true, the author of *Regimen* 4 tells us, that diviners who attempted such interpretations achieved occasional successes, but no more frequently than could be expected from mere guesswork. More troubling was the diviners' lack of medical knowledge and their unsatisfactory regimens and prescriptions.[46] The medical writers considered their own systems of dream-interpretation to be scientific and deductive, but in fact their methods of interpretation were the same as those of the diviners and popular interpreters.

---

[41] *Regimen* 4 93 1–11

[42] *Ibid* 4 90 53–63

[43] Rufus *Medical questions* 5 Cf Artemidorus *Oneirocritica* 1 64 and 2 27

[44] For the traditional interpretation, see Artemidorus *Oneirocritica* 1 47–48, and Achmet *Oneirocriticon,* chap 117

[45] Galen *Dreams* (= Kuhn, 6 834)

[46] *Regimen* 4 87 1–16 But cf Artemidorus's defense of the decipherments of medical dreams by popular dream-interpreters in *Oneirocritica* 4 22, I discuss this passage at length in "The interpretation of prescriptive dreams in ancient Greek medicine," *J Hist Med*, 1981, *36* 416–24

Both the medical writers and the oneirocritics drew from a tradition of dream-lore, which itself was based on traditional material such as popular beliefs, religious and mythological stories, literary motifs, proverbs, and folk tales. For example, a dream of having an olive tree growing out of one's head means that the dreamer will become an eager follower of philosophy, since the olive tree was sacred to the Greek goddess Athena, who was considered the embodiment of wisdom.[47] Or, if someone dreams that his ship is sailing smoothly under a fair wind, the local governor or the emperor will deal very well with governmental affairs and keep straight the helms of his glory;[48] this interpretation is based on the common literary metaphor of ship of state.[49]

In *Regimen* 4.92.1–6, we read.

> To see the dead clean and in white cloaks is a good sign, or to receive something clean from them indicates both health of body and the healthiness of the things that enter the body For from the dead come nourishment, growth, and seed, and for these to enter the body clean indicates health.

This interpretation reflects a popular belief, handed down in the dream-books, that a dead body, if buried in the earth, decomposed and changed into seed and food.[50] Recent research, in fact, suggests that much, if not all of the dream-material in the *Regimen* 4 is traditional and perhaps originally had no medical application.[51] Galen also used traditional material in his interpretations of dreams. In Galen's account of the man who dreamt that one of his legs turned into stone, Galen's interpretation of leg = slave was traditional and appears in dream-books from Roman and Byzantine times. Likewise, many interpretations of medical dreams recorded by Aelius Aristides in the second century A.D. conform to those in contemporary popular dream-books.[52]

The actual interpretation was derived from one of several methodologies. These methods involve wordplay, metaphor, conformity of the dream-content to everyday life, and analogy (metonymy).

Puns and wordplay were prevalent in the dreams recorded in dream-book literature. These writers recorded many medical dreams whose meaning was made clear by the explication of a punning in the dream-content. For example:

> Fronto, who had arthritis, after he prayed for a medical cure, dreamt that he was

---

[47] Artemidorus *Oneirocritica* 5 18

[48] Manuel II Palaeologus *Interpretation of dreams* 24 (= Armand Delatte, *Anecdota Atheniensia,* 2 vols [Liège and Paris Édouard Champion, 1927], 1 517)

[49] For example, in the lyric poems of Alcaeus See Denys Page, *Sappho and Alcaeus* (Oxford Clarendon Press, 1979), pp 180–89, esp p 182

[50] For example, in Artemidorus *Oneirocritica* 5 63

[51] Frederich, *Hippokratische Untersuchungen,* pp 206–10, Palm, *Studien,* pp 43–47, Joly, *Recherches,* pp 168–76

[52] Behr, *Aelius Aristides,* app D, pp 196–202

> walking in the suburbs of the city (*propolis*) He obtained relief by rubbing himself with bee-glue (*propolis*)[53]
>
> An athlete dreamt that he was pregnant and gave birth to two black baby girls (*korai*). He went blind and the pupils of his eyes (*korai*) protruded and turned black[54]
>
> A woman who was suffering from an inflammation of the breast dreamt that a sheep sucked at her breast She was cured by applying a poultice of plantain[55]
>
> If someone dreams that he put *kochlos* into his eyes in order to remedy his blindness, he will become effeminate.[56]

Puns are found infrequently in ancient medical texts; perhaps interpretation by wordplay seemed to ancient physicians too vulgar or unscientific a process. The author of *Regimen* 4, however, twice indulged in a wordplay on the word *katharos,* which means both "pure" and "clear." To cite one instance: "Whenever a heavenly body seems to settle on you, if it is clear (*katharos*) and moist, this indicates health, because what descends from the ether onto the person is pure (*katharos*)."[57] Aristides records many instances of interpretation by pun. For example, Aristides once dreamt that he heard the name of the fourth-century B.C. comic-writer Menander. Aristides refused to resume his travels because he took the name Menander as signifying the phrase *menein andra* ("the man should remain").[58]

Still, interpretation of dreams by wordplay was rare among medical writers. However, given the frequency of puns in the medical dreams of the *oneirocritica* and the Asclepian *testimonia,* this method was probably more prevalent than our formal medical sources intimate.[59]

Another method of dream-interpretation is what I term "metaphor" and "hypothetico-deductive reasoning," that is, when the correspondence between meaning and symbol is more metaphorical than literal. In this method, the significance of the dream may be logically deduced from its contents. For example, the meanings of the following dreams from Achmet and Artemidorus are quite clear, given the obvious (at least to Freudians) psychosexual association of vessel = vagina, riding a horse = sexual intercourse, and snake = penis:

---

[53] Artemidorus *Oneirocritica* 4 22

[54] *Ibid* 5 44

[55] *Ibid* 4 22 The Greek word *arnoglōsson* ("plantain") is a compound of *arnos* ("lamb") and *glōssē* ("tongue")

[56] Achmet *Oneirocriticon,* chap 52 The wordplay here is on *kochlos* which (a) meant the rouge used by Near Eastern women to blacken the edge of their eyelids (Evangelius Sophocles, *Greek Lexicon of the Roman and Byzantine Periods* [1914, reprint, Hildesheim Georg Olms Verlag, 1975], s v *kochlos*), and (b) "was stimmi," or antimony sulfide (Celsus *On medicine* 6 6 8, 12–13, trans W G Spencer, Loeb Classical Library, 3 vols [London Heinemann, 1935–38], and E Scheller, *Aulus Cornelius Celsus Uber die Arzneiwissenschaft in acht Buchern* [Hildesheim Georg Olms Verlag, 1967], p 614)

[57] *Regimen* 4 89 99–102

[58] Aristides *Sacred tales* 1 51 (=W. Dindorf, ed., *Aristides* [1829, reprint, Hildesheim Georg Olms Verlag, 1964])

[59] Sigmund Freud had a good deal to say about punning in ancient dream-interpretation, see, for example, *The Interpretation of Dreams,* trans and ed James Strachey (New York Avon, 1971), pp 130–31, n 2 Freud's own theories are stated in his *Der Witz und seine Berziehung zum Unbewussten* (Vienna, 1905) (= *Jokes and Their Relation to the Unconscious,* vol 8 in *The Complete Psychological Works,* trans from the German under the general editorship of James Strachey in collaboration with Anna Freud [London Hogarth Press, 1953–]), esp chap 6

> If someone dreams that he urinated into a vessel, if the vessel belonged to him, he will have sex with his wife, however if the vessel belonged to someone else, he will have sex with another man's wife.[60]
>
> If someone dreams that he was sitting on the Pharaoh's saddle-horse, if he is a member of the royal council, the Pharaoh will give him a woman of the royal family; but if not, he will mount his daughter from behind and everyone will know it[61]
>
> If someone dreams that his wife had a reptile in her possession which she concealed in her bosom and in which she took pleasure, she will commit adultery and with an enemy of his ... A woman dreamt that she gave birth to a snake, later she gave birth to a son who became lewd and wanton and seduced many women in the city For snakes like to slip through slender holes to hide themselves.[62]

Galen often interpreted dreams in a similar way, that is, by determining the dream-contents' logical counterpart in everyday life:

> Some people, who are on the verge of sweating at their crisis, have dreamt that they are bathing and swimming in pools of hot water. So too thirsty people will certainly have dreams of drinking without being sated, just as the hungry will dream of eating insatiably and men full of sperm will imagine that they are having sexual intercourse ... Whenever the soul's faculties are weighed down and oppressed by a plethora of humors, people will imagine in their dreams that they can barely move their bodies and are carrying heavy burdens The opposite occurs whenever the condition of the body is light and without excess People of such dispositions will dream that they are flying or running very fast.[63]

Sometimes the significance of the dream will differ according to the circumstances of the individual dreamer. The oneirocritical writers state that a dream-symbol's meaning will vary with the circumstances of the dreamer —for example, his state of health, occupation, status, and sex;[64] it will vary also with place and time, the dreamer's diet, and even the dreamer's mental state.[65] Thus, given the dream-symbol "crucifixion," Artemidorus deduces the following interpretations:

---

[60] Achmet *Oneirocriticon,* chap 47

[61] *Ibid.,* chap 14

[62] Artemidorus *Oneirocritica* 2 13 and 4 66 For more examples of psychological insights by the dream-book writers, see Oberhelman, "Interpretation of dream-symbols," pp 15–20, and, especially, *idem,* Oneirocriticon *of Achmet,* chap 2; and the lengthy appendix by Hans Bender in F S Krauss, *Artemidor von Daldis, Traumbuch,* ed and supplemented Martin Kaiser (Basel Schwabe, 1965) Often the interpretation was amusingly simple "Someone dreamt that he wiped his rectum dry with frankincense He was convicted of sacrilege [at a later date], since he had treated outrageously [in his dream] that with which one honors the gods The odor signified that he would not go undetected" (Artemidorus *Oneirocritica* 5 4), and "A man dreamt that he was possessed sexually by the god Ares The man suffered later from an ailment of the rectum and the rectal passage and, since no other cure was possible, he underwent a surgical operation and was cured. For Ares signified the iron of the surgical knife, since it is customary to call iron 'Ares' when one is speaking metaphorically. The pleasure that came from the sexual act indicated that the knife would not bring about death" (5 87)

[63] Galen *Dreams* (= Kuhn, 6 834–35)

> Being crucified is favorable for seafarers; for the cross, like a ship, is made of wood and nails, while the ship's mast resembles a cross. This symbol is also favorable for a poor man, for a crucified man is exalted and his substance is sufficient for feeding many birds. The symbol also means the betrayal of secrets, for a crucified man is completely naked and is seen by all. It means harm for rich people; for a crucified man is stripped naked and loses his flesh by the scourging that precedes crucifixion. For a bachelor, the dream means marriage, since the cross is a bond for the crucified; however, the marriage will be a painful one. The dream, however, means freedom for slaves, since the crucified man is no longer subject to anyone. For those who spend time in their native land, or for those who farm their own land, or for those who are afraid of being evicted from some place, the dream signifies that they will not be allowed to remain where they are, for a cross prohibits a man from setting his feet on the ground[66]

The shortcoming of this methodology, of course, is that the applicability of a dream-symbol is infinite—the circumstances a dreamer may be in are limitless, and no interpreter can account for all the variations. Any dream-book, therefore, will fall far short of completeness, as it will contain only a partial catalogue of interpretations.[67]

This flaw did not preclude the use of this methodology by the physicians. Like the dream-book writers, Galen laid great stress on the importance of time and food for the correct interpretation of a dream:

> One must pay attention both to the time [when the dream occurred] and to any nourishment that the dreamer has consumed. For example, suppose that a person dreams that he was covered with snow. If this dream occurs during an attack of exacerbation that is accompanied by shivering or shaking or chills, we must attribute this to the exact time of the dream [that is, when the symptoms are manifest] rather than to the state of the dreamer's body. But if the dream occurs after the crisis and its symptoms have passed, this would give a more certain indication of the coldness of the dominating humors especially if before the dream the dreamer did not eat any of the phlegm-producing foods which, when in the stomach, can cause this type of dream to occur, even though the rest of the body is not similarly affected.[68]

The author of *Regimen* 4 twice interpreted dreams variously for different dreamers: the trembling of the earth or of a house indicates illness when the dreamer is in good health, but health when he is ill;[69] diving in a lake, sea, or river is a bad sign for a healthy person, since it signifies an excess of moisture, but for a fever patient it is a good sign, since it indicates that the heat has been suppressed by moisture.[70]

---

[64] Artemidorus *Oneirocritica* 1 3, 1 8, 4 1, 4 4 Cf Achmet *Oneirocriticon,* chaps 2 and 301.

[65] Artemidorus *Oneirocritica* 1 6–7, with the notes and loc. in Pack's Teubner edition Cf Achmet *Oneirocriticon,* chap 301

[66] Artemidorus *Oneirocritica* 2 53

[67] Behr, *Aelius Aristides,* pp 172–73, 182–83, 189–90

[68] Galen *Dreams* (= Kuhn, 6 832–33)

We would possess more such multiple interpretations in the medical corpora, but what we have are essentially theoretical works, which do not recount numerous dreams, as do the dream-books, where the purpose was to list as many examples of correctly interpreted dreams as possible.

Closely related to this concept is the comparison of the dream-content to waking-state reality. Here the interpreter determines whether the contents of the dream are in accordance with reality (*kata physin, kata nomon, kata tropon*);[71] if they are, the dream indicates good, but if the dream and reality are dissimilar (*para physin*),[72] then evil is indicated.

The author of *Regimen* 4 adhered to this method closely:

> Such dreams as repeat in the night a man's actions or thoughts in the day-time, representing them as occurring naturally, just as they were done or planned during the day in a normal act—these are good for a man. They signify health, because the soul abides by the purposes of the day, and is overpowered neither by surfeit nor by depletion nor by any attack from without But when dreams are contrary to the acts of the day, and there occurs about them some struggle or triumph, a disturbance in the body is indicated[73]

Likewise, good signs are the stars, moon, sun, sky, and water if they are clear, transparent, and pure;[74] but if they are black or impure, or if they disappear, they indicate evil.[75] The same applies to other natural phenomena:

> To see and hear clearly the things on the earth, to walk surely, to run surely, quickly and without fear, to see the earth level and well tilled, trees that are luxuriant, covered with fruit and cultivated, rivers flowing naturally, with water that is pure, and neither higher nor lower than it should be, and springs and wells that are likewise—all these indicate health for the dreamer, and that the body with all its circuits, diet and secretions is proper and normal. But if any-

---

[69] *Regimen* 4 90 39–42

[70] *Ibid* 4 90 64–69 All the Byzantine dream-books (except for Achmet's, which contains multiple interpretations) likewise limit the interpretations of dream-symbols to two types of dreamers ill and healthy, rich and poor, male and female

[71] Cf Artemidorus *Oneirocritica* 1 3 "Experts in these matters say that we must judge as propitious everything that is in accordance with nature, law, custom, occupation, names, and time" As I have demonstrated elsewhere (Oneirocriticon *of Achmet*, chap 2), the dream-books made frequent use of antinomy, when the dream's meaning is the converse of its contents, see Freud, *Interpretation of Dreams*, pp 278–79, 321–22, 361–63, 389–91, 436–37, 470–71, 508–14 I cannot find a single instance of antinomy in the medical writings This is probably due to the physicians' emphasis on the logical, straightforward meaning of a medical dream, see Oberhelman, "Interpretation of prescriptive dreams," pp 418–24

[72] Cf Artemidorus *Oneirocritica* 4 2–8

[73] *Regimen* 4 88 1–13

[74] *Ibid* 4 89 81–86, 99–103.

[75] *Ibid* 4 89 11–17, and 92 7–10

> thing be seen that is the reverse of these things, it indicates some harm in the body.[76]

Analogy (metonymy, or literal association) was the most prevalent method of dream-interpretation among the medical writers and oneirocritics.[77] Here the dream was interpreted by drawing an analogy between the dream-contents (which represented the external world, or macrocosm) and the internal workings of the dreamer's body (microcosm). This allowed the physician to determine the state of the humors and to prescribe the proper regimen and cure

The author of the *Regimen* 4 sets forth this principle clearly. The author is obviously preoccupied with stellar and terrestrial phenomena and how they affect the human body. His interpretations usually involve the macrocosm of heaven or earth and the microcosm of the body. Thus, the stars in the outer sphere, the sun in the middle sphere, and the moon in "the sphere next the hollow" are analogous to the circulation in the body in the outer, middle, and hollow parts.[78] Consequently, a star that is disfigured, that disappears, or that is arrested in its revolution indicates that a moist and phlegmlike secretion has fallen to the outer circuit of the body.[79] Likewise,

> whenever a heavenly body appears to fall away from its orbit, should it be bright and pure, and the motion is towards the east, it is a sign of health. For whenever a pure substance in the body is secreted from the circuit in the natural motion from west to east, it is right and proper In fact secretions into the belly and substances disgorged into the flesh all fall away from the circuit. But whenever a heavenly body seems to be dark and dull, and to move towards the west, or into the sea, or into the earth, or upwards, disease is indicated. When the motion is upwards, it means fluxes of the head, when into the sea, diseases of the bowels, when into the earth, most usually tumors growing in the flesh.[80]

The earth is symbolic of the person's flesh. Trees signify the genitalia, and, thus, fruitless trees that shed their leaves are analogous to corruption of sperm by moist, cold influences, and trees with leaves but without fruit are analogous to corruption of sperm by hot, dry influences.[81] Rivers symbolize the blood's circulation; thus, abnormally high rivers are analogous to excess blood, low water to a deficiency of blood.[82] Impure streams indicate a disturbance of the bowels, and springs and cisterns signify trouble of the bladder.[83] The earth flooded by water means a disease caused by excess moisture in the body, while the earth black or scorched indicates excess of dryness in the flesh.[84]

---

[76] *Ibid* 4 90 1–13 Likewise, a good sign is having a physique neither too small nor too large or clothes that fit the body well (4 91 1–6)

[77] For analogy in ancient medical dream-interpretation, see Oberhelman, "Interpretation of prescriptive dreams," pp 420–23, *idem,* "Galen," pp 42–43, and *idem,* Oneirocriticon *of Achmet,* chap 2

[78] *Regimen* 4 89 1–11 For the circuits of the body and the spheres of the heavenly bodies, see *Regimen* 1 10, and Joly, *Recherches,* pp 37–40

[79] *Regimen* 4 89.11–17

[80] *Ibid* 4 89 81–95

[81] *Ibid* 4 90 22–26

[82] *Ibid* 4 90.28–32 Cf. Artemidorus *Oneirocritica* 1 64, and Daniel, *Dream-book,* no 421, in F Drexl, "Das Traumbuch des Propheten Daniel nach dem cod. Vatic. Palat. gr 319," *Byzantinische Zeitschrift,* 1926, *26* 290–314

Analogy also accounts for the majority of dream-interpretations recorded by Rufus and Galen, both of whom, for example, cite high water as being indicative of excess blood.[85] The method was also popular among the Asclepian writers. Aristides interpreted many dreams along these lines For example, he once took emetics and laxatives because he dreamt of a trench being dug.[86] Later, he took the drug hellebore because he thought that the drug would stir up his body's systems, just as he had seen, in one of his dreams, the ocean's waves in turmoil.[87] Then he self-induced vomiting because he dreamt of having a bone stuck in his throat.[88]

In sum, ancient physicians held dreams—divine, mantic, and physical —to be valid sources of information regarding an individual's health. Dreams were, to them, natural phenomena, even when they were divine, and, as such, they belonged to natural science. It was not happenstance, therefore, that dreams were the special province of Asclepius, the god of doctors, himself the epitome of the rational theology of ancient medicine, for dreams were the synthesis of nature and divinity and, accordingly, they became a standard prognostic and diagnostic tool of the Greek and Roman physician.

---

[83] *Regimen* 4 90 32–38

[84] *Ibid* 4 90 48–56

[85] Galen *Dreams* (= Kuhn, 6 834), and Rufus *Medical questions* 5

[86] Aristides *Sacred tales* 1 46–50 (Dindorf ed) The analogy sometimes is far fetched, as, for example, when Aristides dreamt of Athena, the patron goddess of Attica, he took this as a sign of the need for an enema of honey (Attic honey was, and still is, famous)

[87] *Ibid* 2 12–14 Cf Artemidorus *Oneirocritica* 5 79 "A runner who was due to compete in a sacred contest dreamt that a water channel was full of manure and mud, and that he took a broom, cleaned it out, and then rinsed it out with a large amount of fresh water in order to make it flow smoothly The next day, despite the fact that the contest was close at hand, he took an enema and purged his body of fecal matter He was light-footed and nimble and was crowned the victor "

[88] Aristides *Sacred tales* 1 28 (Dindorf ed) See Behr, *Aelius Aristides*, pp 162–70 and 190–204, for further discussion of Aristides' dreams.

THE SOCIETY OF CHEMICAL PHYSICIANS, THE NEW PHILOSOPHY, AND THE RESTORATION COURT*

Harold J. Cook

In its day, the short-lived Society of Chemical Physicians threatened to undermine both the academic physic and the corporate privileges of the College of Physicians of London. In early 1665, Thomas O'Dowde led an attempt to obtain a royal charter for the new medical organization in London Since 1617, however, when the Society of Apothecaries was created, no new medical institution had been established in the metropolis. Further, public proposals to gain a charter for the Society of Chemical Physicians had intellectual as well as professional implications, since support for the Society was interpreted by some as an indication that many members of the Court found the "new" or "experimental" philosophy to be an increasingly attractive alternative to natural philosophies rooted in academic tradition. Manifest support at Court for the Society meant that the intellectual as well as the institutional standards of the medical status quo were being subverted, although, in the end, the Society of Chemical Physicians failed to obtain its charter.

The existence of the Society was first brought to light in 1953, through the posthumous publication of an article by Sir Henry Thomas which was based upon the discovery of a seventeenth-century broadside. This bit of medical ephemera—recovered by the staff of the Department of Printed Books of the British Museum from a pasteboard wrapping—was an advertisement published by the Society of Chemical Physicians during the last important outbreak of the plague in London, in 1665. Thomas developed the context for the broadside through a careful reading of some of the books published by chemical physicians of the Restoration, creating a story whose details have not been altered since.[1]

Albeit unchanged in its details, the story of the Society of Chemical Physicians has become a stalking horse for various interpretations of medi-

---

* The "Annals of the College of Physicians" are cited with the kind permission of the Royal College of Physicians Revised version of a paper presented at the fifty-eighth annual meeting of the American Association for the History of Medicine, Durham and Chapel Hill, North Carolina, 17 May 1985

[1] Sir Henry Thomas, "The Society of Chymical Physitians: An Echo of the Great Plague of London, 1665," in *Science, Medicine and History*, ed E Ashworth Underwood, 2 vols (London Oxford University Press, 1953), 2 56–71

Bull Hist Med 1987, *61* 61–77

cine during the Restoration in England, particularly following the publication of two important articles in the mid-1960s. P M. Rattansi and Charles Webster have forcefully argued that the social context of the Restoration needs to be explored much more fully if we are to understand the intellectual debates of the period.[2] In his article, Rattansi first pointed to the significance of the Helmontians' courtly patronage. But the major thrust of his interpretation was that the Society represented Helmontian practitioners who had increased in influence over the course of the interregnum because of the changing social needs of the growing metropolis of London. The Helmontians, he argued, briefly and inadvertently became third parties in an older social conflict, that between the gentlemen physicians and the tradesmen apothecaries, in which the Helmontians sided with the apothecaries against the physicians.[3]

Charles Webster, upon discovering a plan by a member of the Hartlib circle to create a "College of Graduate Physicians" in 1656, came to see the Society of Chemical Physicians as an outgrowth of projects originated during the Puritan Commonwealth Webster noted that whereas William Rand's "College" of 1656 was to have contained respectably qualified practitioners, the Society of 1665 was a much more heterogeneous group of both respectable and "mountebank" practitioners, moreover, Rand's group had been proposed during what Webster believed to be a period of weakness for the College of Physicians, whereas the Society of Chemical Physicians had been a "defensive gesture taken after the revival of the . licensing power [of the College of Physicians]." But, he argued, because the Hartlib circle had been essential to promoting the growth of chemistry in England and because of overlapping membership between it and the Society of Chemical Physicians, a basic continuity existed.[4]

The argumentative intentions of Webster and Rattansi to investigate the contexts of the 1660s through the history of the Society of Chemical Physicians have stood up very well, but the discovery of documents unknown to these authors makes it possible to offer a new interpretation of the Society and its meaning for the medicine of the 1660s. The interpretation of the Society's brief existence offered here suggests that it had little to do with the social needs of Londoners or the interests of apothecaries, nor was it the outcome of plans proposed during the interregnum. I propose that the Society of Chemical Physicians came to the fore only after the powers of the

---

[2] P M Rattansi, "The Helmontian-Galenist controversy in Restoration England," *Ambix*, 1964, *12* 1–23, and Charles Webster, "English medical reformers of the Puritan Revolution a background to the 'Society of Chymical Physitians,'" *Ambix*, 1967, *14* 16–41 Allen G Debus for the most part follows Rattansi's interpretation in his *The Chemical Philosophy Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries*, 2 vols (New York Science History Publications, 1977), 2 510–11

[3] Rattansi, "Helmontian-Galenist controversy"

[4] Webster, "English medical reformers", also see his *The Great Instauration Science, Medicine and Reform, 1626–1660* (New York Holmes and Meier, 1975), p 307 Quotation is from "English medical reformers," p 41

College of Physicians had been seriously weakened; that the Society alienated apothecaries as well as physicians; and that, although it was indeed a heterogeneous group, the Society was in the main advanced by ambitious former royalists who played upon both the open-handed patronage and the intellectual sympathies evident among certain parties of the royal Court. Seen in this light, the story of the Society of Chemical Physicians can help illuminate why some proponents of learned physic thought themselves under attack not only by "Helmontian" chemists, but also by the "new" or "experimental" philosophy encouraged by certain groups at Court—a way of doing things from which not only intellectuals, but also medical empirics, could benefit.

If the royal Court was to be the source of patronage for the Society of Chemical Physicians, it had already been that for the College of Physicians. Lord Chancellor Wolsey's patronage of the College was founded in large part upon a desire to defend academic medical learning. According to the preface of the College's 1518 charter, Henry VIII founded the College in order to promote learned physic. That is, the physicians of the Court, foremost among them Thomas Linacre, were given the privilege of incorporating and licensing physicians in London so that their learned art could be furthered and dignified.[5] The art of physic, obtained through long and arduous study in the universities, was rooted in philosophical learning stemming from the ancient sources, knowledge of which was essential to a practitioner of dietetic medicine. The philosophical learning in which physic was rooted helped the learned physician not only to cure the sick, but also to counsel clients on how to retain health and prolong life. Physic, then, was distinct from mere medicine, which concerned itself only with therapeutic ministrations to the sick.[6] The physicians obtained fraternal protection from the competition of other practitioners in order to further the knowledge and dignity of physic.

By the end of the third decade of the seventeenth century, the College of Physicians, due to monarchical support, had come to exercise considerable power over the medical community of London. It both tried other practitioners in its capacity to sit as a court and subordinated the two other local medical corporations, the United Company of Barber-Surgeons (established in 1540) and the Society of Apothecaries.[7] But many medical practitioners in London, including those practicing chemical medicine, had long objected to the College's juridical authority. Any new medical corporation created around a body of practitioners of mere medicine would pose a clear threat to the College of Physicians' power and undermine respect for the principles of learned physic.

---

[5] George N Clark, *A History of the Royal College of Physicians of London,* 3 vols (Oxford Clarendon Press, 1964), 1. 58–66, Gweneth Whitteridge, "Some Italian precursors of the Royal College of Physicians," *J Roy Coll Phys London,* 1977, *12* 67–80, Charles Webster, "Thomas Linacre and the Foundation of the College of Physicians," in *Essays on the Life of Thomas Linacre, c 1460–1524,* ed. Francis Maddison, Margaret Pelling, and Charles Webster (Oxford Clarendon Press, 1977), pp 198–222 Also see James K. McConica, *English Humanists and Reformation Politics under Henry VIII and Edward VI* (Oxford Clarendon Press, 1965)

[6] For a discussion of the differences between the "science" of physic and the "craft" of medicine in the ancient world (a distinction upon which many discussions in the early modern period were based), see especially Ludwig Edelstein, "The Dietetics of Antiquity" and "The Relation of Ancient Philosophy to Medicine," in his *Ancient Medicine,* ed. Owsei Temkin and C Lilian Temkin, trans C. Lilian Temkin (Baltimore Johns Hopkins Press, 1967), pp 303–16, 349–66, and Owsei Temkin, "Greek medicine as science and craft," *Isis,* 1953, *44* 213–25, reprinted in his *The Double Face of Janus* (Baltimore Johns Hopkins University Press, 1977), pp 137–53

Such a threat was especially grave in the mid-1660s, because the College of Physicians had been having difficulties in retaining its institutional preeminence in the practice of physic in London. In April of 1664, the College's public authority was weakened when the House of Commons refused to ratify the College's new royal charter. Believing that they had the support of Lord Chancellor Clarendon, the College officers had looked forward to having their new charter passed, rectifying the powerlessness caused by a legal decision of 1656 that had undercut the powers obtained in a charter from Cromwell. The outcome of the decision of the Parliament in 1664 left the College of Physicians in a frail institutional and legal condition, and heightened its members' concerns about the dignity of academic physic.[8]

A significant indication of the kinds of public sentiments that helped to undermine the College's case in the Parliament can be found in a book written by an author known only as T.M.[9] This work indicates that, in addition to the Society of Apothecaries and the Barber-Surgeons' Company, the virtuosi, or supporters of the new science, had also opposed the College's charter. Previous attempts to identify T.M. have been unconvincing.[10] Whoever T.M. was, his book gives an illuminating explanation of why the House of Commons voted down the charter of the College of Physicians.

A brief summary of T.M.'s point of view is in order here. First he says that medicine is currently in an imperfect state. This has been caused by the introduction of divisions among physicians, apothecaries, and surgeons during the "dark ages." The ancients made medical advances because their physicians both gave advice and worked with their hands in preparing medicines and carrying out surgical operations. It would be good if the previous unity of medical practice could be restored, but since that is probably impossible, the best plan would be to reform the current practice of physic along experimental lines—to make the College of Physicians into an institution rather like the new Royal Society, which he praises highly.[11] T.M. then says that, to encourage further experimental learning in physic, the physicians should not send their prescriptions to be filled by apothecaries, but should make up their medicines themselves.[12] Finally, chemical medicines must be better incorporated into the practice of the physicians.[13]

---

[7] On the College's juridical authority in the early seventeenth century, see Harold J Cook, "'Against common right and reason'. the College of Physicians versus Dr Thomas Bonham," *Amer J Legal Hist*, 1985, *29* 301–22, also see Charles Webster, "William Harvey and the Crisis of Jacobean England," in *William Harvey and His Age The Professional and Social Context of the Discovery of the Circulation*, ed Jerome J Bylebyl (Baltimore Johns Hopkins University Press, 1979), pp. 1–27

[8] The text of the proposed charter can be found at the British Library, Sloane 3914, fols 100–103 Also see *House of Commons Journal*, 19 and 20 April 1664, *8* 546, and "Annals of the College of Physicians (1647–82)," 4, fols 81b–84a.

[9] T M, *A Letter Concerning the Present State of Physick, and the Regulation of the Practice of it in this Kingdom Written to a Doctor here in London* (London, 1665)

[10] Most identifications of T M have assumed that he was a physician the catalogue of the British Library, for instance, identifies him as Christopher Merrett, a Fellow of the College of Physicians, apparently on the strength of Merrett's involvement in the pamphlet wars that followed But this identification is wanting See R. S. Roberts, "Jonathan Goddard a lost work or a ghost?" *Med Hist*, 1964, *8* 191 The title of T M 's book claims that the book is written "to" a doctor "here in London" Moreover, the only internal clues to the identity of the author are two claims one, that he had a discourse with the virtuosi at Sir Thomas's house, and two, that "our House did not pass the Patent, by his majesty lately granted to the Colledge" (T M, *A Letter,* pp 4, 5) That is, he was associated with the virtuosi and also closely associated with, if not a member of, the House of Commons But no medical practitioners were then members of Parliament, nor do the lists of members of the House of Commons and the Royal Society yield any probable author with the initials T M, with letters of a name ending in T M, or with the initials reversed ("M T.")

This plan, if it were carried out, T.M. argued, would go beyond mere medical empiricism.[14] It would make medicine into a science, "which is so universally the design of the present Age."[15] If the College of Physicians refused to initiate such a reform, however, "I could desire it may be thought advisable to provide for it by publick Authority"—that is, the king or the Parliament might step in to reform medicine if the physicians did not.[16] T.M., then, proposed both an experimental solution and a largely chemical solution to the problems of the 1660s by emphasizing medicine over physic, and he raised the specter of institutional changes imposed by "publick Authority."

In the wake of the Parliament's decision against the College, the intellectual and political sentiments behind T.M.'s book found expression in a long work penned by Marchamont Nedham, which detailed the advantages of Helmontian medicine.[17] A well-educated man, Nedham had become a chemical practitioner to help support himself when he first moved to London in the early 1640s, had studied chemistry without practicing while he was employed in other pressing pursuits, and then had practiced it again to earn a living sometime after Cromwell's death.[18] During the years when he only studied chemical medicine, Nedham was one of the most prolific propagandists of the interregnum, siding first with the Parliament, then with the Independents, then with the royalists, then with Cromwell Politically a "classical republican," Nedham had a sharp pen and a keen nose for the latest political possibilities.[19] His salvo of late 1664—the first known piece by him printed after the Restoration, appearing within six months of the College's defeat in Parliament—very strongly identified Helmontianism with the "new philosophy" coming into vogue. When a man of Nedham's political and polemical experience spoke on behalf of his calling, the learned men of the College of Physicians listened anxiously.

---

[11] T M, *A Letter*, pp 7–19

[12] *Ibid*, pp 19–58

[13] *Ibid*, pp 62–63

[14] *Ibid*, pp 58–61

[15] *Ibid*, p 12

[16] *Ibid*, pp 64–65

[17] Marchamont Nedham, *Medela Medicinae A Plea for the free Profession, and a Renovation of the Art of Physick, Out of the Noblest and most Authentick Writers* (London, 1665).

[18] *Ibid*, sigs A6–A6v

[19] Blair Worden, "Classical Republicanism and the Puritan Revolution," in *History and Imagination*, ed. Hugh Lloyd-Jones, Valerie Pearl, and Blair Worden (London Duckworth, 1981), pp 182–200, esp pp 192–99, and Joseph Frank, *Cromwell's Press Agent A Critical Biography of Marchamont Nedham, 1620–1678* (Lanham, Maryland. University Press of America, 1980)

The tones the physicians discerned in Nedham's argument disturbed many of them deeply. He argued that the learning acquired by the physicians in their long university educations served no good purpose other than to convince an ignorant public that the physicians were superior men. Behind their showy Latin phrases and references to anatomy lay nothing that could help cure anyone; nothing, that is, except what was already known to those who could read English Old women imitated the physicians' venesections and herbal purges. Not only were the physicians' therapies used by the vulgar, however—they were also dangerous. The true medicine came from experiment and the intuition of the properly prepared initiate: the way of chemical medicine as reformulated by Jean Baptista van Helmont. Helmontian medicine could cure more diseases with less risk and more certain results than could Galenical medicine, argued Nedham.[20]

Many parts of Nedham's argument had been heard before, but his was the first major work on chemical medicine since the return of the Stuarts. It was a large work, it stressed the need to concentrate on curing the sick rather than keeping the healthy well via academic dietetics, and it was penned by a master of persuasion, who frequently quoted at length respected authorities on the new philosophy, particularly Sir Francis Bacon and Robert Boyle.

Because Nedham's position seemed so threatening, within three months, a member of the College of Physicians brought out a reply to him. Robert Sprackling saw clearly that the "Fantastick Pleader" and "Innovatour" Nedham was trying to oppose both academic physic and the "legally established Corporation of Physicians."[21] Sprackling therefore defended Hippocrates' and Galen's writings from the misunderstandings and abuses of Nedham; he corrected the record regarding the true sentiments of modern authors such as Robert Boyle and Thomas Willis as well as of practicing physicians; he defended dietetics, "wherein Chymistry is not much concerned," as being just as necessary as pharmacy "to the Hygieinal and Therapeutique parts of Physique",[22] he defended the modern notions of humors, elements, and temperaments,[23] and he was concerned to demonstrate to the apothecaries that their economic interests lay with the physicians who sent prescriptions to them rather than with the "empirics" who would have the physicians make up their own medicines.[24]

---

[20] For lengthier descriptions of Nedham's treatise, see Richard F Jones, *Ancients and Moderns A Study of the Rise of the Scientific Movement in Seventeenth-Century England,* 2nd ed (St. Louis, Missouri Washington University Press, 1961), pp 206–10, and Lester S King, *The Road to Medical Enlightenment, 1650–1695* (New York American Elsevier, 1970), pp 145–54

[21] Robert Sprackling, *Medela Ignorantiae Or, A Just and Plain Vindication of Hippocrates and Galen from the Groundless Imputations of M.N* (1665), sig A3 The book bears a license dated "Feb 24, 1664/5"

[22] *Ibid*, p 32

[23] *Ibid*, esp. pp 44–47

Toward the end of his book, Sprackling began calling Nedham a "fanatick writer."[25] Nedham's argument that the London College of Physicians should be overthrown because of the abuses of the Paris Faculty of Medicine in suppressing alternative medical practices in the early seventeenth century was for Sprackling "a pretty Fanatick inference, which will serve as properly to overthrow any other Authority, that can be established in the world."[26] Nedham was, thus, guilty of "treason and conspiracy."[27] Similar arguments were soon made by other collegiate physicians.[28]

Sprackling's abusive language toward Nedham grew worse as the book progressed because as time went on the chemists were not merely waging a war of words—they were trying to obtain institutional legitimacy, as well Not four months after Nedham's book, and just a few days after Sprackling's book appeared, a pamphlet of one hundred pages written by Thomas O'Dowde announced in its dedication to Gilbert Sheldon, Archbishop of Canterbury, the formation of the Society of Chemical Physicians. O'Dowde's little book for the most part advertised cures he had performed, but its preface strongly condemned the "Galenists," and its conclusion contained two petitions: the first, for incorporation, addressed to the king by the thirty-five men who made up the potential membership of the Society, and the second, in support of the chemists, signed by thirty-eight noblemen and gentlemen.[29] O'Dowde's petitions were published within a year after the House of Commons vetoed the College of Physicians' new charter, at the same time T.M. was arguing that the College of Physicians was not enough like the Royal Society.

O'Dowde's petitions were particularly troubling because they originated with a man who seemed to have influence in the realm. O'Dowde was a courtier, having recently been made a groom of the bedchamber of the king. This position would enable him to lobby for the scheme to create a Society of Chemical Physicians. By the time his pamphlet appeared, O'Dowde seemed to be gaining ground, for, according to its dedication, the pamphlet and its two petitions were published by O'Dowde "in obedience to your Lordship[']s [i.e., Archbishop Sheldon's], and their Lordships the Earl of Clarendon, Lord High Chancellor of England, and his Grace the Duke of Buckingham's Commands."[30]

---

[24] *Ibid*, pp 24–30

[25] *Ibid*, p 120

[26] *Ibid*, pp 158–59

[27] *Ibid*, p 162

[28] John Twysden, *Medicina Veterum Vindicata, Or An Answer To a Book, entituled Medela Medicinae* (London, 1666), Nathaniel Hodges, *Vindiciae Medicinae et Medicorum Or an Apology for the Profession and Professors of Physick* (London, 1666)

[29] Thomas O'Dowde, *The Poor Man's Physician, Or the True Art of Medicine, As it is Chymically prepared and administred, for healing the several Diseases incident to Mankind The Third Edition* (London, 1665), sigs A3v–A6v, and pp 92ff The pamphlet, dated 10 March 1665, is called the "third edition" because it is an elaboration on two earlier advertisements by O'Dowde, one of which survives in the form of the broadside described below

O'Dowde undoubtedly gained the position of groom and obtained a hearing from some of the most important lords at Court because he had been a royalist during the interregnum. The only account of his life relates that he had been born into a "generous" family in Ireland but that his father's death and mother's remarriage, together with the "Troubles" in that country in the 1640s, caused him to lose his inheritance. He therefore entered the service of Charles I not long before the king's execution, and thereafter became an agent for the royalist cause, moving from place to place, being imprisoned several times (sometimes with his wife), and even (it was claimed) being examined by Cromwell himself on threat of death. Banished from England, he secretly returned to Nottingham and was taken prisoner again shortly before Cromwell's death, but he escaped again to join the king, returning to England upon the Restoration. During this time he also took up the practice of medicine full time to support himself and his family and to do good—all this according to his daughter's later testimony.[31] Whatever one may think of her apology, the gist of her story is probably true: O'Dowde served as a sometime royal agent during the interregnum and supported himself in part by practicing medicine without any training—a way of generating income common enough to form a theme in picaresque literature.[32]

Charles II, then, offered patronage to a loyal servant, O'Dowde, by granting him a place in his bedchamber. Equally important to O'Dowde's influence as his past, however, was the fact that the king held medical opinions that favored anyone who seemed to be able to cure, regardless of his credentials Charles II went so far as to issue royal licenses to a number of empirics during the mid-1660s.[33] Therefore, as one of O'Dowde's associates later said, His Majesty "was pleased to give [O'Dowde] a kinde aspect, from a consideration of some notable Cures (as was reported) attained by him, which those eminent Galenists [of the College] could not accomplish."[34] That is, as he did to William Sermon, Sir Richard Barker, and other medical empirics offering novel medicines that had cured someone close to the king, the king was prepared to entertain the idea of extending his favors to O'Dowde.[35]

---

[30] *Ibid*, sig A1

[31] Mary Trye, *Medicatrix, or the Woman-Physician Vindicating Thomas O Dowde, a Chymical Physician, and Royal Licentiate against Henry Stubbe* (London, 1675), pp 25–32

[32] H J C von Grimmelshausen, *The Adventurous Simplicissimus* (c 1668), trans A T S Goodrick (reprint, Lincoln: University of Nebraska Press, 1962), pp 232–34, 242–43, 251–54, also see Herbert Silvette, *The Doctor on Stage Medicine and Medical Men in Seventeenth Century England* (Knoxville University of Tennessee Press, 1967)

[33] Leslie G Matthews, "Licensed mountebanks in Britain," *J Hist Med*, 1964, *19* 30–45

[34] George Thomson, *A Letter sent to Mr Henry Stubbe* (London, 1672), p 21

[35] For a description of how patronage could advance a practitioner, see Harold J Cook, *The Decline of the Old Medical Regime in Stuart London* (Ithaca, New York Cornell University Press, 1986), pp 47–48

O'Dowde had been a groom of the bedchamber for one year by the time he announced the formation of the Society. In O'Dowde's earliest known publication, a broadside, he proudly signed himself "one of the Grooms of the Chamber to his Sacred Majesty King Charles the Second."[36] The broadside was licensed by the "surveyor of the imprimery" (that is, the royal censor) Roger L'Estrange, on 28 April 1664, perhaps significantly, just a few days after the new charter of the College had been voted down in the Parliament. As did most such contemporary advertisers, O'Dowde promised he could do great things that could not be matched by the "Galenists," including curing the plague in a mere six hours.[37] Had the College's charter been ratified, he would have risked punishment from its members by making such a promise.

This first advertisement of O'Dowde's allows us to infer who helped to bring him to the attention of the Court. Like many other contemporary medical advertisements, it includes a list of people cured by O'Dowde, several of whom were subsequently well placed at Court. Perhaps the man closest to O'Dowde was his "dearest friend Col. Robert Werden of the Bed-Chamber to his Royal Highness [the Duke of York]." Werden had distinguished himself as a royalist officer in the civil wars and took part in Booth's rising in Cheshire against the Commonwealth in 1659 Although after Booth's rebellion he turned informer, and then served two years in prison for treason upon the Restoration, he returned to the Duke of York's favor in 1662, and in June of 1665 he was commissioned a lieutenant in the duke's guards. Werden continued to take an interest in O'Dowde's activities until O'Dowde's death.[38]

But Werden is not the only important figure mentioned in O'Dowde's broadside as one of his cured patients. also included were Sir George Freeman, Knight of the Bath, and Lady Freeman; "Madame Katherine Needham," daughter of the late Lord "Kilmurry"; Mrs. Elizabeth Booth, daughter of Sir John Booth; some servants of the "late Lady Byron"; and "Mr. Henry Brunkard of the Bedchamber." All of these well-born men and women were royalists from the area around and north and east of Chester who now had important places at Court, particularly in the circle of the Duke of York: Madame Katherine Needham was the daughter of Charles Needham, fourth Viscount Kilmorey, who died in prison after supporting Booth's insurrection; Mrs. Elizabeth Booth was the daughter of Sir John Booth, who was the brother of the rebel Booth; the "late Lady Byron" was the first wife of the first Lord Byron (also a royalist officer from Cheshire and Lancashire, who took as his second wife Eleanor Needham, another daughter of Kilmorey), and Henry Brouncker, an intimate friend of the Duke of York's, who had a 1646 doctorate of medicine from Oxford, was the younger brother of Viscount William Brouncker, President of the Royal Society. Since O'Dowde also mentions in his broadside that he had practiced in Derbyshire for four and a half years, and since his daughter relates that he spent time in Nottingham, it would seem that O'Dowde had acquired these patients while he practiced in the region of the southern Pennines during his period as a royalist agent.

---

[36] Now located in the Bute Collection of the Houghton Library Widener Library, Harvard University

[37] Thomas O'Dowde, "The Poor Mans Physician the true Art of Medicine as it is prepared and administred for the healing of all diseases incident to mankind" (London, 1664)

[38] See the letter of Werden's, published by O'Dowde in O'Dowde's broadside titled "Two Letters Concerning the Cure of Plague" (London, July 1665), Bute Collection of the Houghton Library, Widener Library, Harvard University

O'Dowde was also able to gather support at Court because he at least pretended to a chemical practice. At the time of his first advertisement, O'Dowde was practicing out of a "laboratory" located "against St. Clements Church in the Strand," meaning that he had established a chemical practice on the well-traveled road between the City of London and Westminster.[39] Chemistry was then a fashionable pursuit at the royal Court Even a Fellow of the College of Physicians had to admit that Archbishop Sheldon

> and many other Persons of great Honor and worth do approve Chymistry as the most probable means to discover a sensible Philosophy, and to furnish noble Medicines for the benefit of Mankind.[40]

The king's boon companion the Second Duke of Buckingham believed for a while that he had uncovered the philosopher's stone.[41] Charles II himself practiced chemistry in a laboratory he built on the grounds of Whitehall Palace, venturing into his laboratory on many occasions with Sir Robert Moray, who had probably recently procured the charter of the Royal Society.[42] Viscount Brouncker, who was the president of the Royal Society, as well as a doctor of medicine (his brother, Henry Brouncker, had been one of O'Dowde's patients), liked chemistry very much.[43] In late 1664 and early 1665, not only the king and his brother, the Duke of York, but a flock of noblemen joined the Royal Society, in part because of their interest in chemistry.[44]

By early 1665, then, O'Dowde made a formidable opponent for the physicians of the College. He had a place at Court and well placed friends who had been treated by him It seemed possible that he might convert the enthusiasm of many aristocrats and gentlemen for chemistry and the new philosophy generally into support for a new medical corporation. Therefore, O'Dowde began to organize the formation of a Society of Chemical Physicians, at the urgings, according to his dedication, of the archbishop, the Lord Chancellor, and the Duke of Buckingham. He circulated two petitions, one to chemical practitioners who were potential members of the Society, and one to aristocrats and gentlemen of the Court who were potential allies of the Society.

---

[39] O'Dowde, "Poor Mans Physician "

[40] Hodges, *Vindiciae Medicinae et Medicorum,* dedication To Archbishop Sheldon, therefore, O'Dowde and the chemist George Thomson (as well as Hodges) dedicated their works in the mid-1660s O'Dowde, *The Poor Man's Physician The Third Edition,* George Thomson, *Galeno-Pale or, A Chymical Trial of the Galenists* (London, 1665)

[41] Buckingham was therefore another person to whom a contemporary work by a medical chemist was addressed See Edward Bolnest, *Medicina Instaurata, Or, A Brief Account of the True Grounds and Principles of the Art of Physick* (London, 1665)

[42] M L Wolbarsht and D S Sax, "Charles II, a royal martyr," *Notes Records Roy Soc*, 1961, *16* 154–57

[43] J F Scott and Sir Harold Hartley, "William, Viscount Brouncker, P R S ," *Notes Records Roy Soc.,* 1960, *15* 147–58

[44] See the chronological list of membership in Michael Hunter, *The Royal Society and Its Fellows, 1660–1700* (Chalfont St. Giles, Bucks British Society for the History of Science, 1981)

Among the thirty-five potential members of the Society of Chemical Physicians who signed O'Dowde's membership petition, little unity can be discerned in terms of political or religious affiliation, or general background. One physician who had been expelled from the College of Physicians, an Honorary Fellow of the College, and two Candidates signed on; so, too, did the royal chemist Nicaise Le Febvre; Colonel Robert Werden and his brother John signed both the petition of the chemists and the "Engagement" of its supporters; three former members of the Hartlib circle set their names to the document;[45] and several men who frequently published on medicine added their signatures. A number of well-known London empirics and chemists completed the list of those interested in becoming members of the proposed Society. A core of five names appears on O'Dowde's membership petition and on the other two lists of members of the Society (the broadside advertising the Society's services during the plague and the list of members of the Society published by George Thomson[46]): O'Dowde, Nedham, George Thomson, Everard Maynwaring, and Thomas Williams. Little is known of Williams; O'Dowde, Nedham, and Thomson (who had a medical degree from Leiden)[47] propagandized on behalf of chemical medicine but otherwise had little in common, Everard Maynwaring (who had a Dublin medical degree) wrote many books on medicine, virtually all of which were sympathetic to the learned physicians and dietetic medicine, although he favored some chemical medicines in therapy.[48] Aside from an interest in chemistry, members of the group appear to have lacked much in common.

The signers of O'Dowde's membership petition varied also in their orientation toward medicine. Some, such as Nedham, Le Febvre, Joseph Dey, and George Starkey, clearly were deeply versed in the teachings of Jean Baptista van Helmont. Some, such as Robert Werden, seem to have been interested in chemistry but not yet versed in its secrets. Others—for example, O'Dowde—seem to have been self-taught empirics who dressed their remedies in the garb of chemistry.

---

[45] Webster, "English medical reformers," p 41

[46] George Thomson, *'Loimotomia', Or, The Pest Anatomized* (London, 1666), the list is reprinted in Thomas, "Society of Chymical Physitians," p 65 Greek words in titles have been transliterated to Roman characters and placed in single quotes

[47] See Charles Webster, "The Helmontian George Thomson and William Harvey the revival and application of splenectomy to physiological research," *Med Hist*, 1971, *15* 154–67

[48] See, for example, Everard Maynwaring, *Tutela Sanitatis Sive Vita Protracta The Protection of Long Life, and Detection of its brevity, from diatetic causes and common Customs* (London, 1663), *idem, Medicus Absolutus The Compleat Physitian, Qualified and Dignified* (London, 1668), *idem, The Ancient Practice of Physick, Revived, and Confirmed* (London, 1670), *idem, The Method and Means of Enjoying Health, Vigour, and Long Life* (London, 1683)

But if advertising was a sign of empiricism, O'Dowde was not unusual among the potential members of the Society: virtually all of the signers of his membership petition who published anything proclaimed their medical abilities, and they usually advertised their remedies, as well. O'Dowde's pamphlet containing the two petitions recommends Nedham's book, claims to have had a French gentleman referred to him by the king, argues that his medicines are the "finger of God," and generally lambasts his detractors, but for the most part it discusses cures performed by him on various persons (including those listed in his earlier broadside).[49] Edward Bolnest advertised his "pilula solaris," "quintessentia salis balsamica," "pilula nobilissima purgans," "tintura mirabilis," "balsamus vitae," and "specificum anodynum nobilissimum" in his treatise, George Thomson in many of his works advertised his "stomach essense," a remedy that John Heydon claimed had been stolen from himself.[50] The remedies of all these men were, moreover, exalted above those of mere empirics through references to chemistry and, often, to the new "experimental" philosophy.

The chemical empirics, naturally, disliked medical regulation. O'Dowde claimed that he had been persecuted by one or more of the members of the College of Physicians. He had to admit that in his first broadside he had "miscalled" the disease of Mr. Richard Rawlinson. Although O'Dowde was satisfied that he had cured Rawlinson, Rawlinson let it be known that O'Dowde had misrepresented his case, causing at least one physician (whom O'Dowde claimed had been unable to cure Rawlinson previously) to threaten O'Dowde with prosecution by the College.[51] Because of Rawlinson's case, the physician (who reminded O'Dowde of a vain Scottish physician) told the king and others that O'Dowde was an ignorant quack.[52] Setting up a new medical institution might be the best way for O'Dowde to clear his name and to hurt the College of Physicians, as well as to promote "Hermetic Physick."[53]

To gain support for his institution, O'Dowde claimed that it would be a society of "chemical physicians." T.M. and Nedham had both strongly urged that a close connection be drawn between chemistry and empirical science. Interest in the new philosophy and chemistry seems also to have been strong among the courtiers who signed O'Dowde's petition of support: eleven of the thirty-eight signers had already become Fellows of the Royal Society; among the fourteen lords who signed, seven had joined the Royal Society before July 1665.[54]

---

[49] O'Dowde, *Poor Man's Physician* *The Third Edition*, pp 31, 48, 88–90, 79–84

[50] Bolnest, *Medicina Instaurata*, pp 16–70, John Heydon, *'Phonthenfanzia' Or, A Quintuple Rosiecrucian Scourge for the due Correction of that Pseudo-chymist and scurritous* [sic] *Emperick, George Thomson* (London, 1665)

[51] O'Dowde, *Poor Man's Physician* *The Third Edition*, sigs A4v–A5, pp 4–8

[52] *Ibid*, pp 79–84 The College's most important apologist of the time, William Johnson, made much of Rawlinson's case against O'Dowde in his *'Agurto-Mastix,' Or, some Brief Animadversions upon two late Treatises* (London, 1665), pp 113–19 One of O'Dowde's associates, however, later reprinted Rawlinson's retraction of his complaint against O'Dowde George Thomson, *'Plano-Pnigmos' Or, A Gag for Johnson* (London, 1665), pp 30–31 Sir Alexander Fraizer was the king's first physician and a Scot as well as a member of the College of Physicians

[53] The plans of William Rand in 1656 and of Noah Biggs in 1651 (*'Mataeotechnia Medicinae Praxeus' The Vanity of the Craft of Physick* [London, 1651]) both argue for medical institutions that, like the College, would have exclusive memberships, O'Dowde's plan would have admitted virtually any empiric who claimed to practice chemical medicine

With empirical chemists like O'Dowde finding support among members of the Royal Society and other virtuosi, the recently founded institution for promoting the new philosophy seemed to be in conflict with the College of Physicians. An anonymous manuscript from the period says that the "experimentators" of the Royal Society "advance Odowds Colledge."[55] As Henry Stubbe later put it, "this is not more notorious to the world, than ... that those objections [to learned physic] with which M[archamont] N[edham] and other Quacksalvers amuse the Age were suggested unto them by the Virtuosi, and derived their repute from them." Not only Nedham, but also O'Dowde, was associated with the virtuosi in another of Stubbe's works.[56] The College of Physicians "is in danger to be overthrown" by empirics and quacks, he wrote, and "all this mischief hath its principal source, original, and strength from the BACONICAL PHILOSOPHERS." Or, to put it another way, the proposal to create a Society of Chemical Physicians was another example of how "experiment" was becoming "a new inundation of Goths and Vandals amongst us"—particularly at Court.[57]

Not all of the monarchy's political leaders supported O'Dowde's scheme: Lord Chancellor Clarendon and Lord Arlington, next to the Duke of Buckingham the most powerful among the king's ministers, are notable by their absence from O'Dowde's list of supporters. Neither was enamored of Buckingham, and neither showed any evidence of interest in chemistry.

Perhaps a grave weakness of O'Dowde's proposal, therefore, was that only one or two groups among the many shifting factions at Court in the mid-1660s supported it. The list of thirty-eight signers of the petition in favor of the chemists was headed by the Archbishop of Canterbury, followed by the Duke of Buckingham, eleven earls, the Bishop of London, a viscount, and twenty-three gentlemen.[58] A large number of the gentlemen were associated with the Duke of York's household, perhaps thanks to Werden's influence.[59]

The political views of the fourteen signers of O'Dowde's petition who sat in the House of Lords can be ascertained through an examination of the list of those voting against Clarendon in the House of Lords in July 1663. Excluding from the fourteen the two bishops (who clearly favored Clarendon's policies toward the Anglican Church), one finds that, of the twelve secular lords, five voted against Clarendon. Because the Duke of Buckingham voted for Clarendon in this instance but otherwise opposed him, at least half of the twelve lords who supported O'Dowde may be said to have opposed Clarendon. Of the remaining six signers of O'Dowde's petition, there is no record of the votes of three, the vote of one is uncertain, and only two voted in favor of Clarendon. the man to whom the College looked for regaining its authority.[60] Therefore, at least half of the lords who supported the Society of Chemical Physicians seem to have belonged to what can loosely be called the "Presbyterian" opposition of the 1660s. Perhaps the signers of O'Dowde's petition of support can be loosely described as "latitudinarian." But with O'Dowde dedicating his work to the archbishop and declaring that Clarendon had urged him on, great caution is required on this point.

---

[54] Hunter, *Royal Society,* list

[55] Untitled, British Library, Sloane 1786, fol 118b

[56] Henry Stubbe, *Campanella Revived, Or an Enquiry into the History of the Royal Society* (London, 1670), [Preface] "To the Reader", *idem, Legends no Histories or, A Specimen Of some Animadversions Upon the History of the Royal Society* (London, 1670), sig *1v

[57] Henry Stubbe, *The Lord Bacon's Relation of the Sweating-Sickness Examined* (London, 1671), second dedication

[58] O'Dowde, *Poor Man's Physician . The Third Edition,* pp 92ff, the list is reprinted in Thomas, "Society of Chymical Physitians," pp 63–64

[59] See Rattansi, "Helmontian-Galenist controversy," pp 10–18

O'Dowde's petitions to create a Society of Chemical Physicians were considered by the king and the Privy Council during an audience at either the end of March or the beginning of April 1665. Physicians like Sprackling, having received a rebuff in the House of Commons in part because they were not encouraging the new philosophy enough, and noting the aristocratic support gathered by O'Dowde, worried. But O'Dowde met with his first rebuff at this meeting. Unfortunately, the English State Papers contain no references to the interview. The chemists, and particularly O'Dowde, seem to have met with great difficulties, since former chemical associates of O'Dowde's tried to distance themselves from him almost immediately.[61]

We can infer that the College of Physicians had mustered its own support at Court against the Society. The royal physicians—all of them members of the College—would also have had a chance to object at O'Dowde's audience with the king and council. According to the later testimony of one of the chemists, George Thomson, one or more members of the College of Physicians sent out a spy to gather information on some of the chemists in order to show that they were quacks and politically suspect.[62] Thomson also declared that one "Mr Galen" presented the complaints of the physicians to the council; perhaps he was the same person who had earlier told the king that O'Dowde was a quack[63]

The "official" version of the meeting written by the College of Physicians' chemist, William Johnson, says that O'Dowde and his confederates were accused of two matters. The first was quackery, since they had no proper training in medicine. As Johnson put it, they were "Fanaticks in Physick," being "made Doctors in the opinion of the Vulgar" who were in fact "Foot-Men, Gun-Smiths, Heel-Makers, and Butchers."[64] The second matter was political subversion: the members of the Society of Chemical Physicians were accused of anarchism, because they wished to "renounce all Order and Government in the State," and of republicanism, because they acted by petition, just as the late rebels had done.[65] It is clear at least that O'Dowde was found to be illiterate (that is, without a knowledge of Latin), and that he was also charged with causing harm to some of his patients.[66] George Thomson believed that the admission of "mock chemists" into the Society had damaged the reputation of all the members.[67]

---

[60] Richard Davis, "The 'Presbyterian' Opposition and the Emergence of Party in the House of Lords in the Reign of Charles II," in *Party and Management in Parliament, 1660–1784,* ed Clyve Jones (New York: St. Martin's, 1984), pp 1–35, see the votes recorded in col 1, app 2, pp 27–34

[61] Thomson (*'Plano-Pnigmos,'* pp 26–31) says that he considers O'Dowde more a courtier than a practitioner See also Marchamont Nedham, preface to Bolnest's *Medicina Instaurata*

[62] Thomson, *'Plano-Pnigmos,'* pp 22–23

[63] *Ibid*, pp 1–10

The light in which O'Dowde's practice and proposal were placed may have caused several of the better chemical practitioners who had signed O'Dowde's membership petition to withdraw at least some of their support from the scheme, leaving, according to Thomson, only the "illiterate" ones to support O'Dowde.[68] Marchamont Nedham explained to the Duke of Buckingham that he was not "chidden" but, rather, "countenanced at our Audience at the King's Council-Table."[69] Presumably other "literate" chemists were "countenanced," as well, while the O'Dowdes among them were "chidden." These divisions within the ranks of the chemists were real, for, to many Helmontians and academic physicians alike, O'Dowde and his ilk soon came to represent the worst "cozeners" of the king's people—the quacks—who merely pretended to a knowledge of chemistry.

But the divisions within the ranks of the chemists can be overstated. O'Dowde, at least, did not give up. The plague (the Great Plague of London, as it has come to be known) made its first signs visible almost at the very moment he was proposing the Society of Chemical Physicians. Although the king and his council soon consulted the College of Physicians regarding what measures to take in the face of this grave public emergency,[70] many chemists began to berate the physicians for deserting their stations.[71] Soon O'Dowde, together with Thomson and Nedham, among others, published an advertisement for chemical medicines claiming that these medicines were prepared during the plague "in pursuance of his Majesties Command."[72] One month later, O'Dowde published yet another broadside publicizing the Society of Chemical Physicians' response to "His Majesties Commands by the Lord Ashley" to send one of its members to help relieve the plague in Southampton (a particularly sensitive spot, given its military importance during the ongoing war with the Dutch): they nominated and sent Edward Bolnest.[73]

---

[64] Johnson, *'Agurto-Mastix,'* pp 5–6 Johnson seems to mean Lionel Lockyer (the "butcher," who, according to George Starkey, learned chemistry from "Molton of Hogg-lane" (Starkey, *A Smart Scourge for a Silly, Sawcy fool* [London, 1665]), William Trigg (who had first been trained as a shoemaker), and O'Dowde (the "footman"), all uneducated empirics

[65] Johnson, *'Agurto-Mastix,'* pp 12–13, 85–86, also see the remarks of Twysden in the dedication to *Medicina Veterum Vindicata* See, too, the voices of the College raised against the chemists cited in nn 21 and 28 herein

[66] These are the major charges rebutted by Thomson in *'Plano-Pnigmos'*

[67] Thomson, *Galeno-Pale,* p 103

[68] *Ibid*, pp 103ff, *idem, 'Loimotomia,'* pp 178–79

[69] Marchamont Nedham, introduction to Bolnest's *Medicina Instaurata.*

[70] See Cook, *Decline of the Old Medical Regime,* pp 155–56

[71] George Starkey, *An Epistolar Discourse,* printed with Thomson's *'Plano-Pnigmos'* (London, 1665), p 54

O'Dowde and his wife perished of the disease in mid-August, despite his purported cures for the plague.[74] After James's reign, no scheme to create a new London medical corporation came as close to success as O'Dowde's had until the mid-eighteenth century, although ten years after O'Dowde, several chemical practitioners again publicly raised the idea of creating a new and innovative medical organization in London.[75] The London chemists of the 1670s, however, had no personal links to the Court. With O'Dowde's death, then, the immediate institutional threat to the established medical corporations disappeared.

The social history of the Society of Chemical Physicians is largely the story of Court patronage for a chemical empiric and his associates. It may be that the effect of patronage on historical developments, particularly institutional ones, has too often been overlooked in medical history. Because of the connection between chemistry and the new philosophy of the period, the intellectual history of the Society of Chemical Physicians has far-reaching implications, as well. It illuminates the larger battle of the seventeenth century over whether learned texts (and dietetics) or empiricism (and the administration of drugs) would serve as the best foundation of practice: whether physic or medicine would be preeminent. Many pamphlets and books on medical practice in London written in the next few years took up arguments similar to those of O'Dowde, Nedham, and T.M. The apothecaries were said to be bad and experimentalism good, and, as a consequence, a number of proposals were published to have the physicians make up medicines themselves rather than send to the apothecaries.[76] Needless to say, the Society of Apothecaries, as well as the College of Physicians, was disturbed by such plans.[77]

---

[72] This was the broadside discovered by the British Museum staff which formed the basis of Thomas's "The Society of Chymical Physitians" A facsimile is printed on p 56 of the second volume of Underwood, *Science, Medicine and History*

[73] O'Dowde, "Two Letters Concerning the Cure of Plague"

[74] O'Dowde's daughter later gave an explanation of why the two died despite O'Dowde's claims to have an infallible cure for the plague (Trye, *Medicatrix*, pp 44–69) It was rumored at the time that O'Dowde and some others died as the result of performing an autopsy on a plague victim (John Tillison to Dr Sancroft, 14 September 1665, in *Original Letters, Illustrative of English History*, ed Henry Ellis, ser 2, 4 vols [London: Harding and Lepard, 1827], 4: 37) Because Mary Trye makes no claim to this kind of martyrdom, however, we can assume that her father had nothing to do with the plague anatomy in fact carried out by George Thomson (see his *'Loimotomia,'* esp pp 69–106)

[75] C D, *Some Reasons, of the Present Decay of the Practise of Physick in learned and Approved Doctors* (London, 1675), Adrian Huyberts, *A Corner-stone laid towards the Building of a New Colledge* (London, 1675), George Thomson, *'Ortho-methodos iatro-chymike' or the Direct Method of Curing Chymically* (London, 1675), pp 185–99, *The Principles of the Chymists of London Stated, with the Reasons of their Dissent from the Colledge of Physicians, as They were unanimously agreed on by them, at a Meeting in London* (London, 1676), copy in the Yale University Medical Library

If chemical medicine was one aspect of the struggles over the new philosophy of the period, however, O'Dowde's example ought to remind us that not all chemists of the period were true intellectuals; many were simply medical empirics playing to the latest intellectual fashions in order to better themselves. And, as the example of the gentleman-chemist Van Helmont ought to remind us, an interest in chemistry was not limited to a "bourgeois" or craftsman's milieu in the mid-seventeenth century; many aristocratic members of the English Court admired it. One may speculate about the reasons for aristocratic interest in chemical medicine in the 1660s, about how a "science" supposedly open only to an initiate could attract the interest of men who were exalted above the common herd. But aristocratic interest surely indicates that not only the social but also the intellectual basis of the vogue for medical empiricism and chemistry will not be fully understood until we investigate further the culture of the European courts, the milieu in which the Society of Chemical Physicians had its beginnings and in which the Royal Society was founded.

---

[76] Bolnest, *Medicina Instaurata*, Everard Maynwaring, *Medicus Absolutus*, [Daniel Cox], *A Discourse wherein The Interest of the Patient in Reference to Physick and Physicians is soberly debated* (London, 1669), Christopher Merrett, *A Short View of the Frauds, and Abuses Committed by Apothecaries* (London, 1669), Jonathan Goddard, *A Discourse Setting forth the Unhappy Condition of the Practice of Physick in London* (London, 1670).

[77] A London apothecary wrote anxiously to a friend about the books advocating that physicians make up their own remedies (British Library, Sloane 631, fols. 168–77), the apothecaries replied with *Lex Talionis, Sive Vindiciae Pharmacoporum. Or a Short Reply to Dr. Merrett's Book, And Others, written against the Apothecaries* (London, 1670). The Society of Apothecaries tried to have Christopher Merrett and Jonathan Goddard expelled from the College of Physicians for writing as they did, and this led to renewed attempts to create harmony between the two corporations ("Annals of the College of Physicians," [1647–82], 4, fols. 96b–97b). Stubbe argued that if the apothecaries and physicians were to quarrel at such a time, "then the impertinent virtuosi and insolent Quacksalvers would carry away all the advantage" (*Campanella Revived*, postscript, p. 20). See Harold J. Cook, "Physicians and the New Philosophy in Mid-Seventeenth-Century England," forthcoming in the proceedings of the 1986 Corpus Christi Conference on seventeenth-century medicine.

THE HENRY PHIPPS INSTITUTE, 1903–1937: PIONEERING TUBERCULOSIS WORK WITH AN URBAN MINORITY*

David McBride

In the early decades of the twentieth century, American public health authorities were confronted by critical problems. Continuing the patterns set in the nineteenth century, American cities were becoming increasingly populated by an industrial working class that was plagued by illness and injury.[1] Among these urban workers were growing numbers of southern blacks and foreign-born immigrants.[2] Between 1890 and 1910, Philadelphia's black population increased more than 100 percent, to 84,000 in a city with a total population of 1.5 million, and by 1920, it had nearly doubled again, to approximately 134,000 in a population of 1.7 million.[3] Health authorities and municipal officials in this and other large cities were particularly alarmed over the extraordinarily high incidence of tuberculosis among the black citizenry.[4] In 1905, health experts in Philadelphia described tuberculosis among blacks in the city as "exceedingly prevalent."[5] Between 1910 and 1920, according to the records of the city's health department, the proportion of blacks who developed tuberculosis was four to six times the proportion of white citizens who developed the disease.[6]

The severity of the tuberculosis incidence among blacks led to an unprecedented public health experiment in Philadelphia Dr. Henry Robert Murray Landis of the city's Phipps Institute for the study of the prevention and treatment of tuberculosis developed a unique program in 1914 and

---

*A version of this paper was presented at the fifty-ninth annual meeting of the American Association for the History of Medicine, Rochester, New York, 3 May 1986

[1] Daniel M Fox, "Social Policy and City Politics Tuberculosis Reporting in New York, 1889–1900," in *Sickness and Health in America Readings in the History of Medicine and Public Health,* ed. Judith W Leavitt and Ronald L Numbers (Madison University of Wisconsin Press, 1978), pp 418–19

[2] George Rosen, "The First Neighborhood Health Center Movement Its Rise and Fall," in Leavitt and Numbers, eds , *Sickness and Health in America,* pp 185–87

[3] Hollis R. Lynch, *The Black Urban Condition* (New York Thomas Y Crowell Co , 1973), pp 424–27

[4] Contemporary works in which these fears were expressed include William M Pickett, *The Negro Problem Abraham Lincoln's Solution* (1908, reprint, New York Negro Universities Press, 1968), pp 9–11, Edward Eggleston, *The Ultimate Solution of the American Negro Problem* (1913, reprint, New York AMS Press, 1973), pp 205–31, and T J Woofter, Jr , *Negro Problems in Cities* (New York Doubleday, 1928), pp. 78–95 For a description of the social milieu in which these fears were generated, see I. A. Newby, *Jim Crow's Defense Anti-Negro Thought in America, 1900–1930* (Baton Rouge Louisiana State University Press, 1965), pp 3–51

[5] *Second Annual Report of the Henry Phipps Institute* (Philadelphia, 1906), p 13

[6] City of Philadelphia, Department of Public Health and Charities, *Annual Reports of the Bureau of Health, 1915,* p 80

Bull Hist Med 1987, *61.* 78–97

sustained it through the 1930s. Employing a small corps of dedicated black medical professionals, Dr. Landis coordinated a program for investigating and attacking tuberculosis among blacks. This program, which by the mid-1930s was having a national impact, constituted a unique phase in the history of American public health care and medical research which heretofore has not been acknowledged. The contributions of Landis and his colleagues are the focus of this paper.

Two broad impulses were responsible for the emergence of the Phipps Institute: first was the establishment of health centers in many neighborhoods throughout American cities, and second was an increase in the medical research sponsored by large philanthropic foundations. Around the turn of the century, many of the nation's industrialists and civic leaders embraced humanitarian progressivism just as American society was being reshaped by increased foreign immigration, black migration, and urbanization.[7] Social ills and diseases among the poverty-stricken residents of the cities came to be viewed by the philanthropic sector as constituting an alarming crisis.[8] At the same time, city hospitals had no clearly defined admissions and treatment policies for the city's lower-class residents,[9] and the often expensive family physician was unable to combat the health problems of the urban poor singlehandedly[10] As for municipal public health institutions, they, too, were being overwhelmed by the mounting health hazards unleashed by industrial work and urban congestion.

With the approval of the new upper and middle classes of the cities, industrial philanthropists and political progressives united during the 1880s and 1890s in a general campaign to eliminate urban blight By the early 1900s the campaign was being waged through settlement houses and formal public health programs that were designed to attack specific diseases.[11] The neighborhood health clinic was the setting in which much urban health care took place. These health centers most often developed as components of the settlement agencies and were usually located in the neighborhoods of European immigrant groups. They strived to improve the health and "social hygiene" of poor immigrants, and some offered care to blacks, as well.[12] Concurrent with the growth of these centers was the proliferation of medical research projects supported by the nation's financial magnates.[13] The Rockefellers were among the first to provide money for medical research. The Rockefeller Institute for Medical Research in New York was established in 1901. Eight years later, the Rockefeller Sanitary Commission was set up for the purpose of eradicating hookworm throughout the southern states.[14] Based on similar philanthropic premises—namely, the desire to aid the urban indigent, advance the cause of public health, and assist the medical community in finding cures for contagious diseases—the Henry Phipps Institute was established by Henry Phipps in Philadelphia in 1903 [15] Phipps was a steel magnate and a business partner of Andrew Carnegie who had a longstanding interest in eradicating tuberculosis.[16] The Institute was the nation's first endowed center for research and clinical campaigns to curtail tuberculosis.[17]

---

[7] Robert H. Wiebe, *The Search For Order, 1877–1920* (New York. Hill and Wang, 1967), pp 164–77, David Burner et al , *An American Portrait A History of the United States* (Saint James, N Y Perspectives and Revisionary Press, 1983), pp 452–58, 465–66

[8] John Duffy, *A History of Public Health in New York City, 1866–1966* (New York Russell Sage Foundation, 1974), pp 539–44, James H Jones, *Bad Blood The Tuskegee Syphilis Experiment* (New York. Free Press, 1981), pp 21–22, David Rosner, "Health care for the 'truly needy' nineteenth-century origins of the concept," *Milbank Memorial Quarterly/Health and Society,* 1982, *60* 355–85, Robert H. Bremner, *From the Depths The Discovery of Poverty in the United States* (New York New York University Press, 1956), pp 129–30, Rosen, "First Neighborhood Health Center Movement," p 186

On early twentieth-century developments in public health and medical practice which stemmed from a growing awareness of the influence of social context on patients, see, for instance, James Reed, "Doctors, Birth Control, and Social Values, 1830–1970," in *The Therapeutic Revolution Essays in the Social History of American Medicine,* ed. Morris J Vogel and Charles E Rosenberg (Philadelphia University of Pennsylvania Press, 1979), pp 116–23 and p 129, n 1, Jones, *Bad Blood,* pp 30–34, and Lloyd C Taylor, Jr , *The Medical Profession and Social Reform, 1885–1945* (New York. St. Martin's Press, 1974), pp 24–26, 51–61

[9] Morris J Vogel, "Machine Politics and Medical Care. The City Hospital at the Turn of the Century," in *Therapeutic Revolution,* ed Vogel and Rosenberg, pp 159–75, Rosner, "Health care for the 'truly needy' "

[10] George Rosen, "Historical Trends and Future Prospects in Public Health," in *Medical History and Medical Care A Symposium of Perspectives,* ed. Gordon McLachlan and Thomas McKeown (London Oxford University Press, 1971), p 68, Jones, *Bad Blood,* p 34

[11] Wiebe, *Search For Order,* p 168

Henry Phipps decided to underwrite a center for investigating treatments for tuberculosis because it was a project that had been conceived by Dr. Lawrence F. Flick. He greatly respected Flick who was by the turn of the century a nationally recognized authority on the disease and the founder of the nation's first tuberculosis society, the Pennsylvania Society for the Prevention of Tuberculosis (1892).[18] Flick's idea was to organize a research establishment which had a mission to encourage wide-ranging research on all aspects of tuberculosis, both medical and sociological—research that emphasized study across specialties as well as close observation of tuberculosis symptoms and therapeutic approaches inside the clinic and outside in the homes and communities of the patients.[19] Flick was the Institute's director from its opening in 1903 until 1909.[20]

---

[12] Rosen, "First Neighborhood Health Center Movement," pp 185–99

[13] George S Counts, *The Social Foundations of American Education* (New York Charles Scribner's Sons, 1934), p 218, Thomas N Bonner, *Medicine in Chicago, 1850–1950 A Chapter in the Development of a City* (Madison, Wis American History Research Center, 1957), p 84, Christopher Jencks and David Reisman, *The Academic Revolution* (Garden City, N Y Anchor Books, 1969), p 217, Jones, *Bad Blood,* pp 30–60

[14] Waldemar A. Nielsen, *The Big Foundations* (New York. Columbia University Press, 1972), p 49

[15] *Philadelphia Public Ledger,* 15 July 1919, Taylor, Jr , *Medical Profession and Social Reform,* p 34

[16] The industrial and philanthropic activities of Henry Phipps are detailed in Stanton Belfour, "The philanthropic tradition in Pittsburgh," *Western Pennsylvania Hist Mag*, 1954, *37* 91–107, "Henry Phipps," in *Dictionary of American Biography,* ed J Dumas Malone (New York. Charles Scribner's Sons, 1953), 14 550–51, Merle Curti, *American Philanthropy Abroad A History* (New Brunswick, N J Rutgers University Press, 1963), pp 186–87

[17] S Adolphus Knopf, *A History of the National Tuberculosis Association The Anti-Tuberculosis Movement in the United States* (New York National Tuberculosis Association, 1922), p. 16, Taylor, Jr , *Medical Profession and Social Reform,* p 34, Richard H. Shryock, *National Tuberculosis Association, 1904–1954 A Study of the Voluntary Health Movement* (New York. National Tuberculosis Association, 1957)

[18] Knopf, *History of the National Tuberculosis Association,* pp 16–18

[19] *Ibid*, pp 16–17

[20] *Ibid*, p 16

During its initial fifteen years of operation, the Institute was divided into five units: a main dispensary composed of various clinics for tuberculosis treatment and patient study; a laboratory for the investigation of infectious diseases (eventually equipped with X-ray apparatus); a sociological division (sometimes called the social service department), which was responsible for neighborhood studies and visiting nurse services; a library focusing on tuberculosis and infectious disease materials; and a hospital section, which had a small number of beds for patients[21]

From 1903 through 1918 the Institute was maintained by annual appropriations of $54,000 by Phipps In 1910, the main building of the Institute was constructed at Phipps's expense and it housed all five of the Institute's operational units. Also in 1910, the Institute became affiliated with the University of Pennsylvania. Over the next nine years, however, the university proved unable to make sizable appropriations to the Institute Furthermore, Phipps retired from active business, and his endowments to the Institute decreased. These circumstances forced the Institute to abandon the hospital section. However, from 1921 to 1926 the Carnegie Foundation provided $25,000 each year and, also during these years, funds from the University of Pennsylvania became substantial. Thus, the work of the remaining four units, especially the laboratory and the main clinic, continued, and these four units were the mainstay of the Institute's work for decades.[22]

During its first ten years of operations, the Institute's dispensary patients were overwhelmingly white, even though it was located in the midst of a mostly black section of the city. Eventually a clinic for black patients was added to the Institute. The first clinic for blacks commenced in 1914 and operated as a unit with a separate schedule within the main clinic. By the mid-1920s the Institute also became co-sponsor, with other private charitable health organizations, of tuberculosis clinics for blacks which were located in other sections of the city with substantial black populations.

Henry R. M Landis was the key figure in the Phipps Institute's first three decades of operation. He was born in 1872 and educated at the Jefferson Medical College (class of 1897). Landis quickly became one of the nation's leading white clinicians and researchers in the field of tuberculosis and he was chosen to work at the Institute by Flick. His scholarly work included the textbook *Diseases of the Chest,* which he wrote with Dr. George W. Norris. Originally published in 1917, this work had been republished in five editions by the mid-1930s.[23] Landis also served as editor of *International Clinics* from 1916 to 1921, was a founder of the National Tuberculosis Association, and presided over the Pennsylvania Tuberculosis Society from 1928 to 1932.[24] In addition to being the director of the clinics and the sociological division at Phipps, he served as visiting physician to the Commonwealth of Pennsylvania's White Haven Sanatorium after 1904 and was connected with Philadelphia General Hospital until 1909. Philadelphia General was one of the nation's oldest and largest municipal hospitals.[25] In 1912, Landis began a teaching career at the University of Pennsylvania which lasted until his death in 1937. In addition to these professional posts, Landis had for many years an association with the Whittier Center, a Philadelphia social welfare agency that primarily offered assistance to poor blacks. He was an influential board member of the Philadelphia Health Council and Tuberculosis Committee, a voluntary association that raised substantial funds through annual sales of Christmas seals.[26]

---

[21] Esmond R. Long, "Report of the Henry Phipps Institute of the University of Pennsylvania for the Period 1933–1937," *Twenty-Seventh Report of the Henry Phipps Institute* (1937), pp 5–7

[22] *Philadelphia Public Ledger,* 15 July 1919, "The Henry Phipps Institute," *Twentieth Report of the Henry Phipps Institute* (1928), p 10

[23] Charles J Hatfield, "Henry Robert Murray Landis, 1872–1937," *Twenty-Seventh Report of the Henry Phipps Institute* (1937), pp 1–4

The receptiveness of Landis and his colleagues to plans for analyzing and attacking the problem of tuberculosis among Philadelphia's black citizens was an outgrowth of two factors. First, the theoretical approach to tuberculosis pursued by Landis and his fellow researchers adhered to increasingly accepted thought in the international medical scientific community which established a bacterial etiology of the disease. In 1882, when Robert Koch isolated the tubercle bacillus, this bacteria was not immediately accepted by American physicians as the cause of the disease.[27] However, by the late 1890s and early 1900s, Phipps, Landis, and others in public health supported firmly the bacterial school, which was led by physician-scientists such as the eminent William Osler[28]

The original studies conducted by Landis and his colleagues in the early years of the Institute's operation constituted the second factor making them receptive to taking a fresh approach to the longstanding tuberculosis problem among blacks. Beginning in 1904, Landis and his fellow workers at the Institute had learned of a connection between certain occupations and the incidence of tuberculosis. Furthermore, Landis conducted epidemiological studies whose results supported his growing concern that blacks in the city were harboring tuberculosis at a critical level.[29]

---

[24] *Ibid*, p 3

[25] For a succinct history of Philadelphia General Hospital, see Charles E Rosenberg, "From almshouse to hospital· the shaping of Philadelphia General Hospital," *Milbank Memorial Fund Quarterly/Health and Society,* 1982, *60* 108–54

[26] D J McCarthy, "Memoir of Henry Robert Murray Landis, M D," *Trans Stud Coll Phys Philadelphia,* 1938, *6* 254–56

[27] Fox, "Social Policy and City Politics," p 418

[28] Hatfield, "Henry Robert Murray Landis," p 2 On Osler's specific influence on Phipps, see Harvey Cushing, *The Life of Sir William Osler,* 2 vols (Oxford Clarendon Press, 1925), 1 609, n 1, 616, 2 106, 136, and Taylor, Jr , *Medical Profession and Social Reform,* p 34 As for the general acceptance of bacterial etiology and epidemiology throughout early twentieth-century public health circles in America, see Lawrence F Schmeckebier, *The Public Health Service Changing Views in Massachusetts, 1842–1936* (Cambridge, Mass Harvard University Press, 1972), pp 103–12, and Rosen, "Historical Trends and Future Prospects," pp 67–68

[29] Esther L G Price, *Pennsylvania Pioneers against Tuberculosis* (New York National Tuberculosis Association, 1951), pp 163–64, Lawrence F Flick, "The Work of The First Year," *First Annual Report of the Henry Phipps Institute, 1903–1904* (1905), pp 12–13, and *idem,* "The Work of the Year," *Second Annual Report of the Henry Phipps Institute* (1906), p 3

However, the immediate inspiration for the Institute's work with black city-dwellers was provided by a young black physician named Charles A. Lewis. A graduate of the University of Pennsylvania Medical School (class of 1910), Lewis was a medical and political iconoclast, especially with regard to the issue of his race and tuberculosis. According to some of his contemporaries, as a medical student at the University of Pennsylvania, Lewis was critical of what he believed to be a blind assertion by some medical thinkers that "Negroes were more susceptible to the devastating disease primarily because of color."[30]

After graduating from medical school, Lewis set out to raise funds that would enable him to conduct his own survey on tuberculosis. The difficulty of this task was recollected (in 1939) by Lewis and two of his colleagues, Bernard J. Newman and Dr. Algernon B. Jackson. Newman was a leading figure in Philadelphia's social welfare establishment and, later, a member of President Hoover's White House Conference on Child Health and Protection.[31] Jackson was a prominent local black physician They recalled: "As this was the first attempt in the city to combat tuberculosis among Negroes no funds were available, so in order to get the work under way, the University [of Pennsylvania], through its president, contributed $50, and Lincoln University [Pa.], at which Dr. Lewis was physician to the students, $75."[32] Lewis managed to gain supervisory sponsorship from the Phipps Institute, and the survey was made in 1911–12.[33]

Lewis investigated a section in South Philadelphia, in particular a block bounded by Bainbridge, Fitzwater, Twelfth, and Thirteenth streets which was home to several hundred people. He employed the latest public health survey methods for uncovering tuberculosis in unsanitary and impoverished city neighborhoods. These methods had been initiated by Wilbur C. Phillips, a former New York City public health official who had at about this time completed similar surveys in Cincinnati and Milwaukee.[34] Lewis believed that his study demonstrated "that the deplorable conditions under which Negroes were forced to live, because of an economic set-up that failed to net them a living wage, which in turn fostered improper nourishment, caused them to be more susceptible to tuberculosis ... than [did] color."[35] Lewis's sociomedical study on blacks and tuberculosis was humble in scope, yet, according to Works Progress Administration research of the New Deal period, the study "was the first of its kind in the city."[36] Although Lewis did not develop any additional ties to the Phipps Institute, he went on to have a distinguished career at Frederick Douglass Memorial Hospital, and he led many anti-tuberculosis activities among the city's blacks through the 1950s.[37]

---

[30] Millberry, "Black Medical and Dental Expansion after 1900," in *The Negro in Philadelphia, 1938–39, 1941 Records of the Works Progress Administration Pennsylvania Historical Survey, Subgroups Ethnic Survey, 1938–1941,* Pennsylvania State Archives, Harrisburg, Record Group 41, (n d.), p 5 The information on Lewis in Millberry's article is based on interviews conducted with Lewis, Bernard J Newman, and Algernon B Jackson in 1939

[31] White House Conference on Child Health and Protection, *The Home and the Child Report of the Subcommittee on Housing and Home Management* (1931, reprint, New York Arno Press and the *New York Times,* 1972), p xi Newman was also connected with the Whittier Center between 1910 and 1920

[32] Millberry, "Black Medical and Dental Expansion," p 5

[33] *Ibid*

[34] Rosen, "First Neighborhood Health Center Movement," pp 189–90 Phillips's philosophy of public health reform and his development of "demonstration districts" in Milwaukee is detailed in Judith W Leavitt, *The Healthiest City Milwaukee and the Politics of Health Reform* (Princeton, NJ. Princeton University Press, 1982), pp 214–39 The Phillips approach became known as the "social unit" idea. This approach emphasized a two-pronged method of assessing the public health needs of a particular city section. First, the section was divided into "blocks" of approximately 500 people These clusters of blocks were then surveyed and monitored on a block-by-block basis by neighborhood and social welfare workers After a door-to-door inquiry, these workers, in turn, reported the general health needs of block residents to neighborhood health centers and sent the needy individuals to these centers for treatment. Rosen, "First Neighborhood Health Center Movement," pp 190–91.

Current medical authorities would support the position anticipated by Lewis and the conclusion reached by Landis: crowded and impoverished conditions were the major reasons blacks had such a high rate of tuberculosis. Modern medical scientists have disproved the notion that racial susceptibility is the fundamental explanation for the prevalence of the disease among this minority group.[38]

[35] Millberry, "Black Medical and Dental Expansion," p. 5. Evidently no copy of the Lewis study has survived.

[36] *Ibid.*

[37] After completing his work with the Phipps Institute, Lewis remained on the staff of Douglass Hospital through 1948. He also headed a Negro tuberculosis clinic for the city of Philadelphia in 1938 and through the 1950s served on the board or as a prominent member of several local medical and social welfare organizations, including the Berean School, the Philadelphia Housing Association and the Mercy-Douglass Hospital (the city's predominantly black hospital, which was established by the merger and modernization of Douglass and Mercy hospitals). See *Who's Who In Colored America* (New York: WWCA, 1950), p. 338.

[38] Black susceptibility to tuberculosis was by no means a new issue. Indeed, the debate within the American medical community over whether blacks are racially susceptible to tuberculosis stretches back to the pre-Civil War era. For a review of this debate, see Todd L. Savitt, *Medicine and Slavery: The Disease and Health Care of Blacks in Antebellum Virginia* (Champaign: University of Illinois Press, 1978), pp. 41–45, 52, 142–45. For a fresh and incisive study of the international context of disease amongst blacks, see Kenneth F. Kiple and Virginia H. King, *Another Dimension to the Black Diaspora: Diet, Disease, and Racism* (Cambridge: Cambridge University Press, 1981), pp. 7–8, 139–46.

Current medical thought concerning the susceptibility of blacks to tuberculosis nearly ignores the idea of an inherent predisposition to the disease among blacks. Indeed, over the past four decades, the issue of racial-genetic susceptibility has become increasingly obsolete in American medicine due to the emergence of effective immunization and chemotherapy for treatment of tuberculosis, as well as the immunity acquired by many Americans as a result of previous exposure. For instance, writing in 1968, William A. Soderman and William A. Soderman, Jr., two leading pathologists, stated that racial-genetic factors were "of some importance in the development of tuberculosis," and that blacks were more susceptible than whites. However, the Sodermans cautioned, "Hereditary constitutional characteristics, age and sex are factors influencing the course of tuberculosis in the individual, yet the role of these parameters in causing fluctuation in the level of resistance to infection is not understood." These pathologists stated that even African natives (who were, presumably, highly susceptible to tuberculosis), once mildly infected, readily acquired a resistance similar to that of whites (*Pathologic Physiology: Mechanisms of Disease* [Philadelphia: W. B. Saunders, 1968], pp. 54, 556). See also Byung H. Park and Robert A. Good, *Principles of Modern Immunobiology: Basic and Clinical* (Philadelphia: Lea and Febiger, 1974), pp. 546–47, and Harvey B. Simon, "Mycobacteria," *Scientific American Medicine Index*, 1980, *5*: 1201–2, 1212.

By 1980, eminent medical clinicians such as Harvey B. Simon held that the overwhelming majority of tuberculosis patients in the United States developed the disease as a consequence of the reactivation of the old disease or "previous clinical tuberculosis, which, by present standards, had almost always been inadequately treated." Simon does not mention black susceptibility. Instead, he states that, given the disparity in treatment resources, tuberculosis in the United States, "not surprisingly," tends to cluster in certain sociological as opposed to racial groups and "is most common among males, the economically disadvantaged, and inner-city residents." Other social and hospitalized groups who experience a disproportionately high incidence of tuberculosis, according to Simon, are "immigrants, alcoholics, drug-dependent individuals, and

Landis's perception of the origin of tuberculosis—that it was social as well as medical—was consonant with Lewis's findings. In accordance with this view, Landis implemented important changes in the workings of the Institute to address better the lingering tuberculosis crisis among blacks. The measures took two forms, both of which, over the next three decades, would significantly influence tuberculosis work among the nation's blacks. First, Landis's methods differed from the largely lay-sponsored Negro Health Week campaigns initiated by the educational leader Booker T. Washington, in that Landis employed black physicians and black nurses to screen and treat black tuberculosis patients directly, as well as to educate blacks outside of the clinic.[39] Second, while he began to add black medical personnel to the Institute's staff, Landis also attracted simultaneously a steady flow of leading medical researchers to the Institute who pursued novel studies regarding social factors and racial susceptibility to tuberculosis.

The staffing in the clinics at Phipps was altered by Landis beginning around 1914. "In the earlier period of the Phipps Institute's work," he wrote, "it was found impossible to do satisfactory work with Negroes."[40] His description of the situation continued thus:

> Those [blacks] who came to the clinic, more or less by accident, could seldom be induced to persist in their attendance, and no considerable progress could be made with them as individuals. Moreover, the educational effort, which at the time served to bring increasing numbers of whites to the clinic, had no perceptible influence in increasing the interest of the colored people in their health.[41]

In 1914, administrators of the Whittier Center decided to provide the salary for a black nurse who was to be employed at the clinic of the Phipps Institute.[42] Landis, who had been associated with the center since 1912 and later became its president, was instrumental in securing this cooperative measure.[43]

---

patients with gastrectomies, neoplasia, uremia, or debilitating disease" ("Mycobacteria," p. 1). For the more specialized technical literature relied on by Simon, see his "Mycobacteria," especially p. 17, nn. 1–4. Simon's etiological summation has been reaffirmed in the updated 1984 *Scientific American Medicine Index*.

[39] A valuable overview of the anti-tuberculosis campaigns among black Americans during the first half of the twentieth century is found in Marion M. Torchia, "The tuberculosis movement and the race question, 1890–1950," *Bull. Hist. Med.*, 1975, *49*: 152–68. Torchia identifies three dominant phases of anti-tuberculosis work in America during these six decades: the sanitarium movement, government-sponsored public health programs, and voluntary campaigns of the anti-tuberculosis societies. According to Torchia, the sanitarium movement was most influential before 1920, and the other two programs assumed central roles during the 1930s, as the federal social welfare policies of the New Deal era unfolded. Torchia describes self-help, voluntary movements among black communities under the leadership of Booker T. Washington and the Negro Health Week Movement stretching back to 1907. However, Torchia's important study overlooks, first, the Phipps Institute and its influence on other anti-tuberculosis work throughout the nation, and, second, the contributions that black medical professionals made to the research and treatment efforts of the Institute.

[40] Henry R. M. Landis, "The clinic for Negroes at the Henry Phipps Institute," *Trans. Nat. Tuberculosis Assoc.*, 1921, *17*: 429.

[41] *Ibid.*

[42] *Ibid.*

[43] *Annual Report of the Whittier Center, 1920* (Philadelphia), p. 4.

The annual report of the Whittier Center for 1914 included an article titled "A Plea for Health," which was presented by Landis. The article offered the rationale for employing a black nurse as the center's "medical social worker" in cooperation with the Institute, and it indicated that steps were being taken to obtain a black physician. Anti-tuberculosis work among blacks, the article concluded, had to be "done by colored people, for colored people."[44] Landis and center officials expected that in the initial phase the financial assistance for this measure would come from whites, but that blacks would eventually contribute most of the necessary funds. They firmly believed that black self-help was the key, both in the war against tuberculosis and in improving the well-being of black Americans. "If the race is to rise," they stated in the report, "it must be through and by its own members In no other way can it become self-reliant and independent."[45]

In the 1914 report, Landis and Whittier Center officials once again posited the view that sociological and economic ills were kindling widespread tuberculosis among Philadelphia's blacks: "Aside from serious unsanitary defects common to all slums, the Negro dwelling in our larger cities has to contend with the additional burden of ... the overcrowding evil."[46]

The first black nurse hired for the Institute was Elizabeth W. Tyler (Barringer). A graduate of the Freedman's Hospital School of Nursing in Washington, D.C., Tyler had previously been employed with the Henry Street Visiting Nurse Service.[47] (This service was connected with the Henry Street Settlement in New York City, which was one of the earliest neighborhood health services.[48]) Tyler began to make visits throughout black neighborhoods, particularly in an area designated by the Whittier Center "the Black Belt of Philadelphia"—east of Broad Street below the Schuylkill River. She wrote that "on visiting the colored churches one could hear the telltale cough [and] note the symptoms in physique and carriage."[49] Traveling from house to house she was able to persuade some black citizens to submit to outpatient treatment at the Phipps Institute.

Landis and the Institute staff discovered that, as Landis put it, "Mrs. Tyler's work, from the beginning, had an appreciable influence."[50] From 1910 through 1913, the Institute had averaged about 47 black patients a year. In 1914, however, the number of blacks treated rose to 121, "as a result of the educational efforts of the colored nurse for about six months."[51] Later in 1914, two more black nurses were added to the clinic's staff through the financial support of the Philadelphia Committee of the Pennsylvania Society for the Study of Tuberculosis.[52]

---

[44] *Annual Report of the Whittier Center, 1914* (Philadelphia), pp 4–5

[45] *Ibid*, p 5

[46] *Ibid*, p 4

[47] Mabel K. Staupers, *No Time for Prejudice A Study of the Integration of Negroes in Nursing in the United States* (New York Macmillan, 1961), pp 7–8

[48] Rosen, "First Neighborhood Health Center Movement," p 187, and Duffy, *History of Public Health in New York City*, pp 188, 274

[49] *Annual Report of the Whittier Center, 1914*, p 5

[50] Landis, "Clinic for Negroes," p 429

[51] *Ibid*, p 431 See also *Annual Report of the Whittier Center, 1915*, p 5

Whereas Charles Lewis, Henry Landis, Whittier Center officials, and Phipps Institute staff members assumed that immediate social deficiencies were at the root of the tuberculosis crisis among Philadelphia blacks, other Philadelphia medical authorities expounded racialist and evolutionary explanations for the high rate of tuberculosis among blacks. One such authority was Dr. J. Madison Taylor, an assistant professor of nonpharmaceutical therapeutics at Temple University Medical School. In February 1915, Taylor delivered an address titled "Remarks on the Health of the Colored People" at the Varrick Memorial Temple, a local church.[53] He stated that the health of blacks was determined by racial traits. The unique physical characteristics of blacks had evolved during the thousands of years the race had inhabited Africa prior to America's colonial settlement, and thus, according to Taylor, blacks were by heritage adaptive only to the hot climate of the African lowlands. He concluded that, "in order [for] the Afro-American [to] survive or even to maintain a fair measure of health, it is imperative that he shall keep out of the big cities [and] go live in the warmer regions."[54]

Taylor was convinced that blacks were susceptible to tuberculosis because they were maladapted to northern urban environments. Whites and blacks "will not fuse and . . . are totally unlike in racial characteristics and constitution," he stated. Furthermore, he argued, "unless the colored people in a body realize these facts and adapt their forms of life in accordance with them [,] they will disappear." Taylor claimed that his opinions were based not on emotion or sentiment, but on "scientific knowledge."[55]

The social Darwinist and racialist theory regarding the high incidence of tuberculosis among blacks was espoused not only by Taylor. That blacks would inevitably disappear from the United States through epidemics of tuberculosis and other infectious diseases because of the race's inherent susceptibility was, in fact, a view widely held by United States scientists and sociologists before World War I.[56] Unconvinced by the popular argument that the physical characteristics of blacks predisposed them to tuberculosis infection, Landis and his colleagues expanded the Institute's clinical services for blacks. The Phipps group simultaneously broadened their research activities by collecting more detailed empirical data from the comparative diagnoses of black and white patients treated in the Phipps dispensaries.

---

[52] "The Story of the Whittier Center, 1924," Whittier Center, Philadelphia, 1924, p 10

[53] J M Taylor, "Remarks on the health of the colored people," *J Nat Med Assoc.*, 1915, 7 160–163 It may seem odd that *J Nat Med Assoc* published Taylor's speech. However, in a full-scale rebuttal to it, *Journal* editors stated that Afro-Americans were not becoming extinct but, indeed, were prospering despite racially motivated social, economic, and environmental oppression They took strong exception to Taylor's remarks that the "white and black races will not fuse [because] they are too totally unlike in characteristics and confirmation," and that unless "these colored people in a body realize these facts and adopt their forms of life they will disappear" To this the editors replied "The races have been intermingling for the past 250 years and the advice to the colored people to realize these facts seems to us a little far-fetched, for it is a fact well known in the South that it is not the colored people who are responsible for the racial fusion, and that whatever mixing of bloods there may have been in almost every instance has come from the side of whites Hence it [i e, Taylor's advice] would be more properly rendered to the members of the white race as a whole" The editors made it clear that Taylor was to be respected for bringing his ideas before the black public, but that, nonetheless, these statements should be "food for thought" and inspiration for black medical professionals to work to refute ("Editorial—On Dr Taylor of Philadelphia," *J Nat Med Assoc*, 1915, 7 206–8)

[54] Taylor, "Remarks," p 162

[55] *Ibid*

In 1915, Dr. Henry M. Minton, a black physician, was hired to work at the first Negro clinic of the Institute. The salary for Minton's position at the Phipps clinic was provided by the Pennsylvania State Department of Health, which supported the Institute's effort to reach greater numbers of tuberculous blacks.[57] Born in Columbia, South Carolina, in 1871, Minton completed studies in pharmacy at the Philadelphia College of Pharmacy in 1895 and established Pennsylvania's first black-owned drug store. In 1903, Minton closed his drug business to study medicine, and in 1906, he graduated from the Jefferson Medical College and commenced a long and prominent career as a physician. Minton was a central figure at the Phipps Institute's Negro clinic from the time of his appointment until his death in 1946.[58]

By 1918, Minton had developed affiliations with several other medical and charitable associations in addition to the Institute. He was made a member of the advisory council, and then the board of directors, of the Whittier Center.[59] He was the acting superintendent of Mercy Hospital from 1920 to 1944, a member of its board of trustees, and a prominent instructor of the interns at the hospital.[60] (Mercy and Frederick Douglass Memorial Hospital were two of the nation's oldest black hospitals, and the only black hospitals in Philadelphia at the time.) Minton's abiding interest in the social welfare of blacks led him to serve as treasurer of the mainly black Downington Industrial School, and to make studies of the social condition of Philadelphia's blacks. He became influential in both white and black medical and philanthropic circles on policy matters related to the health of black Americans.[61]

---

[56] See, for example, the highly influential work by F L. Hoffman, *Race Traits and Tendencies of the American Negro* (New York American Economic Association, 1896), J B Rogers, "Comparison of gross tuberculosis lesions in whites and Negroes as based on 150 autopsies," *Amer Rev Tuberculosis*, 1920, *4* 669–75, William T · Howard, *Public Health Administration and the Natural History of Disease in Baltimore, Maryland, 1797–1920* (Washington, D C Carnegie Institution of Washington, 1924), esp pp 507–62, W G Smillie and D L. Augustine, "Vital capacity of the Negro race," *JAMA*, 1926, *87* 2055–58, and M. Pinner and J A. Kasper, "Pathological peculiarities of tuberculosis in the American Negro," *Amer Rev Tuberculosis*, 1932, *28* 463–91

[57] Landis, "Clinic for Negroes," p 430. As in other states with large urban black populations, in Pennsylvania, blacks were generally excluded from state-operated sanatoriums. Thus, the Pennsylvania legislature supported the employment of black medical personnel at Phipps because it expected that the Institute's services for blacks would both offer an immediate treatment resource for this overlooked (and growing) minority and improve preventive services to curtail the longstanding high tuberculosis and smallpox rate among blacks. See Torchia, "Tuberculosis movement and the race question," p 155, Henry M Minton, "Negro physicians and public health work in Pennsylvania," *Opportunity J Negro Life*, 1924, *2* 74

[58] Clement Richardson, ed , *The National Cyclopedia of the Colored Race* (Montgomery, Alabama. National Publishing, 1919), p 282

[59] *Annual Report of the Whittier Center, 1914*, p 1, and *Annual Report of the Whittier Center, 1916*, p 2

[60] Richardson, ed , *National Cyclopedia of the Colored Race*, p 282, Edward Trust, *Trust's Professional Directory of Philadelphia, Camden, and Atlantic City and Nearby Towns, 1916–1917*, 5th ed (Philadelphia, 1917), p 265, Thomas R. Peyton, *Quest for Dignity An Autobiography of a Negro Doctor* (Los Angeles· Warren F Lewis, 1950), p 13 Dr Peyton was an intern at Mercy in the early 1920s and studied under Dr Minton.

Like that of other physician-supervisors of tuberculosis clinics, Minton's work consisted of making endless decisions regarding diagnosis and treatment.[62] Because the disease typically struck the lungs without presenting dramatic symptoms—in comparison to, for example, typhoid fever or leprosy—physicians in tuberculosis clinics had to maintain a high degree of suspicion in examining people thought to be infected with tuberculosis.[63] In addition to sputum cultures, Minton had to interpret both the patient's history of exposure to the disease and the physical findings derived from chest X-rays, neither of which yielded clear-cut indications of tubercle bacillus infection.[64] Usually forced to work with only a "presumptive diagnosis," Minton and his nursing staff had time and again to make difficult decisions regarding the type and duration of hospitalization or sanatorium detention.[65]

In addition to performing his clinical duties, Minton ensured that meticulous records were kept of each patient treated at the clinic; these records provided the epidemiological data that were crucial to Phipps researchers and public health officials. Minton also supervised the training of young black physicians and nurses at Mercy Hospital, some of whom he was able later to bring into the Phipps black clinics as staff or trainees.[66] Minton's initial work, in Landis's opinion, was of "high quality" and, like Tyler's, had "greatly improved" the Negro clinic's work with black tuberculosis patients.[67]

Outside the clinic, Minton publicly agitated for a more comprehensive attack on tuberculosis among blacks in the city and the nation. According to Minton, reducing the high incidence of tuberculosis among blacks required that an attack be initiated from a "social as well as [a] health standpoint."[68] He remarked that he became associated with the Institute "certain ... that entirely too large a number of tuberculous members of the [black] race [were] going without treatment."[69] Minton suggested three steps to ameliorate this situation. First, an education campaign was to be undertaken among blacks who lacked knowledge about the disease. This work was to be led by black public health nurses, who would visit families and lay groups to distribute hygienic and dietetic information and advice. Second, incipient cases were to be sought out and referred to appropriate clinics by these community nurses. Third, advanced cases were to be isolated from the community and were to be hospitalized for treatment and study.[70] Like Landis, Minton believed that black medical professionals could fill a vital function, as exemplified by Tyler's effective work of the past year. Minton was hopeful about his new employment with the Institute and the new direction in race relations the Institute had taken: "The movement appeals to me as being capable of much expansion, and as likely to result in much good."[71]

---

[61] "Henry McKee Minton, 1870–1946," *J Nat Med Assoc*, 1955, *47* 285–86

[62] H A. Pattison, "General Discussion of Some of the More Essential Problems Concerned in the Prevention and Control of Tuberculosis," in United States Public Health Service, *Municipal Health Department Practice for the Year 1923*, Public Health Bulletin no 164, July 1926 (Washington, D C Government Printing Office, 1926), pp 195–202

[63] *Ibid*, p 196, Leavitt, *Healthiest City*, p 243, F B Smith, *The People's Health, 1830–1910* (New York. Holmes and Meier, 1979), p 287

[64] George I Lythcott et al, "Infectious Diseases," in *Textbook of Black-Related Diseases*, ed Richard A. Williams (New York. McGraw-Hill, 1975), p 166 Walsh McDermott, "Evaluating the Physician and His Technology," in *Doing Better and Feeling Worse*, ed. John H Knowles (New York Norton, 1979), p 143

[65] For a technical description of such a diagnosis, see Lythcott, "Infectious Diseases," pp 157–78

[66] Henry McKee Minton, "A List of Some of the Projects Completed by Me during My Superintendency of Mercy Hospital," (ca. 1939), Julius Rosenwald Fund Archive, Fisk University, Nashville, Tennessee, p 1

[67] Landis, "Clinic for Negroes," p 429

[68] *Annual Report of the Whittier Center, 1915*, p 5

[69] *Ibid*, p 6

Through the early 1920s, local public health and social welfare organizations increased their support of the Institute's work with blacks. These groups provided funds for expanding the staff of the Negro clinic of the Institute, and the flow of black patients into the clinic steadily increased. In 1915, another black nurse was hired. A field nurse, Cora A. Johnson was salaried by the Philadelphia Health Council and Tuberculosis Committee. In 1919, 190 blacks were treated at the clinic, the following year, 245 were treated. In 1920, the Whittier Center supported the employment of another black graduate nurse, Pauline Ernst.[72] Ernst had served as the chief social worker at Douglass Hospital from 1916 through 1919.[73]

Impressed with the growing effectiveness of the Institute's services for blacks, the Pennsylvania State Department of Health in 1921 provided the clinic with two black physicians, Frank Boston and G. A. Saunders, to work alongside Minton.[74] Later, Boston's primary connection was with Mercy Hospital, where he served as chief surgeon in the early 1930s.[75] These physicians made it possible for the clinic's work to be broadened, and it was projected that 450 black patients would be treated in 1921.[76] The Negro clinic was able to thrive despite the fact that the Institute nearly closed in 1919. By the summer of that year, the Institute's funds were all but depleted and its closing seemed imminent.[77] However, in October, the State Department of Health agreed to take over the Institute so that its effective outpatient health center and bureau of social service could be kept in operation.[78]

The Institute's financial status was further strengthened by the Phipps family's donation of $500,000 in 1920.[79] At the luncheon where this large gift was formally announced, Mayor J. Hampton Moore of Philadelphia declared: "No worthier cause can be engaged in by humanitarians than in sustaining an Institution like the Henry Phipps Institute. I do not live very far from this Institute and I constantly see people of all nationalities groping their way to this ray of light."[80] Two members of the Institute's advisory council also heaped praise on the Institute's recent operations One was Dr. Hermann M. Biggs, the prominent commissioner of health for New York, who extended compliments to Institute officials for the positive effect of their work on public health. Dr. David R. Lyman, the president of the National Tuberculosis Association, also paid respects.[81] The Phipps Institute's acquisition of black medical professionals for social outreach and clinical work with blacks began to gain attention from other medical establishments both in the city and throughout the nation. "The utilizing of colored nurses and physicians," Minton wrote in 1924, "was, in the beginning, an experiment." However, Minton continued, "as the success of this plan became more and more apparent, it was realized that other groups should be given the benefit of what had been demonstrated in this experimental period."[82]

---

[70] *Ibid*, p 5

[71] *Ibid*, p 6

[72] Fannie Eshleman, "The Negro nurse in a tuberculosis program," *Public Health Nursing*, 19 July 1935, reprinted in the *Twenty-Sixth Report of the Henry Phipps Institute* (1935), p 2

[73] Trust, *Professional Directory*, p 250, *idem*, *Trust's Professional Dictionary, 1918–1919*, 6th ed (Philadelphia, 1919), p 200

[74] Landis, "Clinic for Negroes," p 430

[75] Millberry, "Black Medical and Dental Expansion," p 7

[76] Landis, "Clinic for Negroes," p 431

[77] *Philadelphia Public Ledger*, 15 July 1919

[78] *Ibid*, 15 October 1919

[79] *Ibid*, 11 April 1920

One of the first outgrowths of the Institute's "Negro clinic approach" occurred in 1918, in the Department of Diseases of the Chest at the Jefferson Hospital in Philadelphia. After conferring with the Whittier Center, Jefferson placed a black physician "in charge of the Negro work," as Minton phrased it. The intake of black patients and the regularity of their attendance immediately began to improve.[83] Also in 1918, the Philadelphia Committee of the Pennsylvania Society for the Prevention of Tuberculosis established an advisory committee composed of blacks, emulating the Phipps Institute's "idea of selecting Negroes to carry on .. tuberculosis work among their own race."[84] Minton was selected as chairman of this committee.[85]

Between 1919 and 1921, the Institute's all-black clinic led Philadelphia's other tuberculosis treatment centers in volume of black patients. Sadie T. Mossell, a young sociologist who trained at the University of Pennsylvania, conducted a survey in 1923 which highlighted this development.[86] Mossell's study was sponsored by the Whittier Center and published by the Phipps Institute. One of its primary disclosures was the undeniable impact black medical staff members had on the effectiveness of Philadelphia clinics in treating blacks. According to the study, only two hospitals in the city, Philadelphia General Hospital and Rush Hospital, admitted black tuberculosis patients.[87] The city's two black hospitals had no facilities for the care of tuberculosis patients. Mossell's study stated that Philadelphia General was "the only hospital where tuberculous Negroes could be admitted readily in 1921 and kept for any length of time."[88]

---

[80] *Ibid*

[81] *Ibid*, "The Henry Phipps Institute Advisory Council," p 2, *Sixteenth Report of the Henry Phipps Institute* (1923)

[82] "Story of the Whittier Center," pp 10–11

[83] *Ibid*, p 8

[84] *Ibid*

[85] Richardson, ed, *National Cyclopedia of the Colored Race*, p 282

[86] Sadie T Mossell, *A Study of the Negro Tuberculosis Problem in Philadelphia* (Philadelphia. Whittier Center and Henry Phipps Institute, 1923) In later decades, Mossell, who was the first black woman to receive a doctorate from the University of Pennsylvania, became a lawyer and a highly respected civic leader in Philadelphia.

Mossell did not interview patients; rather, she collected treatment data at five of the eight outpatient tuberculosis clinics in Philadelphia which were open to blacks: the Phipps Institute, Rush Hospital, Jefferson Chest Clinic, State Clinic no. 21, and State Clinic no. 107.[89] Although all of these facilities were located in the midst of or directly adjacent to neighborhoods with substantial black populations, the Phipps Institute led all of the clinics studied in the number of new black patients examined (334). In fact, the Institute accounted for 50.39 percent of the 774 black patients examined by these five clinics.[90] The Jefferson Chest Clinic, which by the time of the survey employed a black nurse in addition to its black physician, ranked second in scope. State Clinic no. 21 examined 179 blacks in comparison to Jefferson's 136, but the patient intake of the former was more than twice that of Jefferson. Black patients made up 19 percent of Jefferson's total new patients but just 12 percent of the new patients at State Clinic no. 21.[91]

The use of black medical professionals had a direct influence on the rankings of these clinics with regard to black patient compliance. Mossell wrote. "The Negroes in these 5 clinics showed a favorable record for regular attendance and cooperation, especially in the case of the Phipps Institute and Jefferson Hospital, where colored doctors and nurses cared for the patients."[92] She drew special attention to the Phipps Institute. According to her findings, the "Phipps Institute with the largest staff of such doctors and nurses enrolled twice as many Negro patients as any other clinic, and the average number of visits per patient was also greater."[93] Mossell repeatedly referred to this pattern of black patient attendance in her study in order to refute contemporary stereotypes of incompetent black medical professionals and superstitious, cowardly black patients.[94]

The Phipps Institute's Negro clinic had an impact outside of Philadelphia, and particularly in the mid-Atlantic and southeastern states. At the 1921 meeting of the National Tuberculosis Association, Landis presented a report about the clinic.[95] Afterwards, in the discussion on the paper, Dr. M.J. Fine of Newark related his experience. Fine said that in 1917 he had been influenced by a report presented by Landis concerning the Institute's tuberculosis work with blacks. At first "we couldn't get the colored patients to come to the clinic," Fine recounted, "... and we have seventeen thousand Negroes in Newark " Beginning in 1917, a black nurse and two black physicians were secured, "and since then our clinic has increased immensely."[96] Fine discussed the success of this development from the patients' point of view: "The Negroes seem to take pride in coming to a white clinic· however, they do not want charity and when they come to the colored clinic they feel that it is their own."[97] "Negro clinic work" by other medical leaders which either paralleled that of Landis or was influenced by his approach appeared in Burkeville and Norfolk, Virginia, and Wilmington, Delaware.[98]

---

[87] *Ibid*, p 18

[88] *Ibid*, p 19

[89] The three other clinics did not keep organized records on the race of their patients

[90] Mossell, *Study of the Negro Tuberculosis Problem*, pp 19–20

[91] *Ibid*

[92] *Ibid*

[93] *Ibid*

[94] *Ibid*, p 18

[95] Henry R M Landis, "Background Material of Dr H R. M. Landis' 'Study of the Negro Tuberculosis Problem in Philadelphia, in 1921,'" Biographical Archive Section, College of Physicians of Philadelphia, Cage z8c–9, Philadelphia, Pennsylvania.

By 1922, the Institute's staff had had eight years of experience with a clinic administered by black medical professionals, and Landis had several well-developed ideas concerning how anti-tuberculosis work among blacks could best become part of the national effort to eradicate tuberculosis. His views were enunciated during the one hundred and fifty-sixth annual meeting of the Medical Society of New Jersey, which convened on 22 June 1922. According to Landis, the strategic foundation for all anti-tuberculosis work had to be the knowledge that "tuberculosis is, more than any other disease, a social problem and that nearly everything that relates to the health of the public is included in the battle against it"[99] He informed the physicians that these public health factors included "better housing, a knowledge of dietetics, [and] occupation problems."[100]

Since tuberculosis was associated with so many social conditions, Landis believed that work to eliminate the disease was "the source from which many other public health movements [had] been shaped."[101] He recounted the tremendous accomplishments that had been made in this multifaceted effort since the late nineteenth century. Some of these included the founding of the Adirondack Cottage Sanatorium (by Edward L. Trudeau, in 1884), the Phipps Institute (1903), and the National Tuberculosis Association (1904). The first two establishments aided research and therapy, whereas the association had been responsible for a wide-ranging educational movement that effectively changed popular sanitary practices as well as hospital treatment methods.[102] In 1922, Landis was concerned that tuberculosis was still responsible for one-third of all of the deaths of persons between the ages of twenty-five and forty-five throughout the nation. He believed that three major hurdles had to be cleared in the anti-tuberculosis campaign of the near future. One was the failure of many physicians to acquire the existing knowledge of the disease and to apply it to diagnosis. If large numbers of physicians were to do this, they would become a strong force for preventive medicine throughout the community. Landis believed that some working physicians were overlooking the discoveries in knowledge of the causative factors, pathology, and symptomatology of tuberculosis which had been made since René T. H. Laennec's research. Landis stated: "I believe, not because I am identified with tuberculosis work, but because of my interest in preventive medicine, that every practicing physician should be identified with his local tuberculosis organization."[103]

---

[96] "Discussion of paper ['Clinic for Negroes'] by Dr Landis," *Trans Nat Tuberculosis Assoc*, 1921, *17*· 434

[97] *Ibid*, p 435 Passing mention of Newark's Negro clinic is made in a recent history of public health in this city, but no background is provided regarding the clinic's development (Stuart Galishoff, *Safeguarding the Public Health Newark, 1845–1918* [Westport, Conn Greenwood Press, 1975], p 129)

[98] "Discussion of paper ['Clinic for Negroes'] by Dr Landis," pp 434, 435 Also see "Phipps Institute looks after the health of the Negro," *Nation's Health*, 1923, *5* 364

[99] Henry R.M Landis, "Tuberculosis Campaign and Some of Its Accomplishments," p 2, reprinted in the *Sixteenth Report of the Henry Phipps Institute* (1923), article 1

[100] *Ibid*

[101] *Ibid*

[102] *Ibid*, pp 2–3

A second area in the anti-tuberculosis movement which required improvement involved industrial conditions. Manufacturing occupations such as pottery making and granite cutting posed hazards to the health of workers. To Landis, these "dusty trades" seemed to "predispose the worker to infection with tubercle bacillus " Thus, means within the factory had to be devised which would "eliminate the danger from the inhalation of dust."[104] Furthermore, conditions in the homes of other industrial workers had to be improved. In his work at the White Haven Sanatorium, Landis encountered patients who were workers in cigar-making factories. Apropos of health, factory conditions were satisfactory, but the housing conditions for these poorly paid laborers were found to be "vile."[105]

In Landis's view the third major contemporary problem in anti-tuberculosis work concerned the nation's black community. He discussed the spiraling migration of blacks over the preceding decade from the South to the northern and western regions. In his opinion the so-called "Negro problem" was no longer a "southern problem"; it had become a national one, as well. Blacks were suffering an unusually high mortality rate from tuberculosis, Landis pointed out. At the same time, because of their high concentration in occupations like domestic service and laundry work, blacks were in frequent contact with whites, and could therefore increase the incidence of tuberculosis in the white population.[106] Landis informed the doctors, "it is obvious that any tuberculosis program which fails to make provision for this phase of the problem is inefficient." "It is not a question of sentiment," he explained, "but one of necessity."[107]

Landis outlined the development of the Negro clinic at the Phipps Institute. "For eight years we have been dealing with the Negro problem," he remarked. Prior to 1914, the Institute faced the dilemma of being situated in the midst of an area heavily populated by blacks but receiving very few black patients. "As we failed with the ordinary means," Landis continued, "we determined to try the experiment of using Negro nurses and physicians." Just by employing one black nurse and one black physician, he recounted, the clinic was able to increase its black patient load daily.[108]

---

[103] *Ibid*, p 3
[104] *Ibid*, p 4
[105] *Ibid*, p 5
[106] *Ibid*, pp 3, 4
[107] *Ibid*, p 4

Landis firmly believed that establishing clinics for blacks like the clinic at the Institute was the only successful course local medical institutions could follow in working with black patients. "There can be no doubt," he commented, ". . . that this is the solution of the problem and any community which has a large Negro population would do well to put it in force." Moreover, to him, the "Negro clinic concept" was a concrete alternative to prejudicial approaches to the problem. Landis pointed out that "[t]he prevailing opinion is that tuberculosis in the Negro is incurable and that little can be done for [him]," and then cited recent studies that refuted this opinion. The new data showed "that the Negro is just as amenable to recovery in the early stages of the disease as the whites, providing he is given proper treatment."[109]

In 1922, the Phipps Institute's clinical services for blacks were expanded. To ensure the accuracy of the Institute's research and therapy on black patients, the importance of a comprehensive and detailed diagnosis was stressed in the Institute's black clinic.[110] As a result, other diseases afflicting these patients became evident. Writing on "Non-Tuberculosis Complications of Tuberculosis" in the *Therapeutic Gazette* for December 1922, Landis stated that there were proportionately more syphilis cases among Phipps's black patients than in the population at large.[111] In this study and a related one he conducted a year earlier, Landis did not imply that patients with tuberculosis were inherently more susceptible to syphilis.[112] Instead, Landis's central aim was to call attention to a problem in diagnosis frequently encountered at the clinic. In some patients complaining of lung problems, a complex constellation of symptoms of respiratory infection was present, and it was impossible to diagnose tuberculosis as the primary source of the respiratory infection. However, Landis found that, often, syphilis *could* be detected as the alternative primary cause of the patients' lung ailments Therefore, in addition to the black clinic for tuberculosis, the Institute began conducting special separate clinics for prenatal and postnatal care and syphilis treatment[113] With respect to black patient attendance in these clinics, Landis said: "Our experience with the Negro in these special clinics was similar to that in the tuberculosis dispensary, namely, few patients [came] belonging to that race, so long as they were handled by white nurses."[114]

---

[108] *Ibid*

[109] *Ibid*

[110] Knopf, *History of the National Tuberculosis Association*, p 17

[111] Henry R M Landis, "Non-tuberculosis complications of tuberculosis," *Therapeutic Gazette*, December 1922, p 4, reprinted in the *Sixteenth Report of the Henry Phipps Institute* (1923), article 6

[112] *Ibid*, pp 1, 4 Landis's prior study was "Respiratory Symptoms Due to Latent Syphilis," in *Contributions to Medicine and Biological Research, Dedicated to Sir William Osler, in Honor of his Seventieth Birthday, July 12, 1919, by his Pupils and Co-Workers* (n p, n.d), pp 625–31, this study was reprinted in the *Fifteenth Report of the Henry Phipps Institute* (1921), article 6

Landis cited patient census data that demonstrated the marked jump in new cases at these maternal and syphilis clinics after Mercy Hospital's training school for nurses provided several black nurses to help staff the Phipps clinics. In turn, Landis and his medical and nursing colleagues provided Mercy nurses with an opportunity to gain specialized clinical and public health training that was not readily available to them at other medical institutions in the city. At the close of 1922, the Institute employed a total of six black nurses and three black physicians.[115] Among the newer nurses was Nancy Lois Kemp, a leading nurse among black nurses and head of the Philadelphia district of the National Association of Negro Graduate Nurses.[116]

The Institute's white and black staff members had demonstrated such diligence in their work against tuberculosis that they received special praise from national medical and educational authorities throughout the 1920s and 1930s. S A. Knopf, an eminent tuberculosis expert and one-time president of the National Tuberculosis Association, extolled their work. In 1922, he wrote: "The personal attitude of the staff and the methods by which they work make it possible to state that no medical institution has so far succeeded in entering into the lives of its patients more sympathetically or more helpfully than has the Phipps Institute."[117] A decade later, Horace Mann Bond, a leading scholar in black education and dean of Dillard University, also cited Phipps as an exception to the general lack of anti-tuberculosis public health and education programs in the nation's black communities.[118]

The black clinics of the Phipps Institute functioned effectively under Landis's leadership through the decade of the Great Depression but declined soon after Landis died. Like most of the early urban neighborhood clinics, they were phased out some time during World War II. The larger, modernized hospitals had greatly increased the range of their medical services and, thus, were able to absorb most small, specialized clinics.[119] Moreover, by this time the admission of black patients to most northern medical institutions had become commonplace.[120] In Philadelphia and throughout Pennsylvania, state sanitariums, veterans hospitals, and other public health facilities treating tuberculosis became equally accessible to blacks and whites.[121]

---

[113] Henry R.M Landis, "The tuberculosis problem and the Negro," *Virginia Month*, January 1923, p 5, reprinted in the *Sixteenth Report of the Henry Phipps Institute* (1923), article 3, Knopf, *History of the National Tuberculosis Association*, p 17

[114] Landis, "Tuberculosis problem and the Negro," p 5

[115] *Ibid*

[116] Staupers, *No Time For Prejudice*, pp 10, 17.

[117] Knopf, *History of the National Tuberculosis Association*, p 17

[118] Horace M Bond, *The Education of the Negro in the American Social Order* (New York Prentice-Hall, 1934), pp. 429–30 The wider impact of the Phipps Institute on integrating public health nursing in the 1930s is touched on in C St. C Guild's, "Tuberculosis and the Negro," *Opportunity*, 1938, *16* 170 For examples of Landis's influence on fellow physicians in the field of anti-tuberculosis work during the 1930s, see comments by Dr H G Carter and Dr E L Opie cited by John M Gibson in "The black man and the great white plague," *Social Forces*, 1936, *14* 585–90

The Institute's work during the early part of the century still holds great significance The Institute was a forerunner among American medical institutions in the research and treatment of tuberculosis. Furthermore, by confronting the special needs of sick blacks as well as employing black medical professionals, the Phipps experiment had countered the widespread beliefs that blacks were not apt to seek medical treatment and that blacks were incapable of practicing medicine on a highly competent level. Such beliefs had, prior to World War II, perpetuated the failure of many of the nation's medical facilities to include black physicians and nurses on their staffs.[122] In effect, the Phipps Institute had superbly ministered both to society's medical needs and to its social ills

---

[119] John D Stoeckle and Lucy M Candib, "The Neighborhood Health Center Reform Ideas of Yesterday and Today," in *Neighborhood Health Centers,* ed Robert M Hollister et al (Lexington, Mass Lexington Books, 1974), p 35 Other secondary factors involved in the decline of health centers, such as changes in the social character of urban communities, increased accessibility to private sector medicine, and government resistance to expansion of health centers, are cited by Rosen in "First Neighborhood Health Center Movement," pp 195–97 For a brilliant early work that anticipated how health centers would be phased out, see Michael M Davis, *Clinics, Hospitals, and Health Centers* (New York Harpers, 1927)

[120] A useful summary of this issue through the 1940s is given by Michael M Davis and Hugh H Smythe, "Providing adequate health service to Negroes," *J Negro Ed,* 1949, *18* 305–17, and M O Bousfield, "An account of physicians of color in the United States," *Bull Hist Med,* 1945, *17* 61–84, esp pp 61–62, 73, 79–80 See also Arnold M Rose, *The Negro in America The Condensed Version of Gunnar Myrdal's "An American Dilemma"* (New York Harpers, 1948), p 111 For a valuable recent study, see E H Beardsley, "Making separate, equal black physicians and the problems of medical segregation in the pre-World War II South," *Bull Hist Med,* 1983, *57* 382–96

[121] Bureau of Health, City of Philadelphia, "Report on Proposed Negro Health Center to the Council of Social Agencies in Collaboration with the Bureau of Health, City of Philadelphia for the Rosenwald Fund," March 1937, p 6, Julius Rosenwald Fund Archives

[122] Albert W Dent, "Hospital services and facilities available to Negroes in the United States," *J Negro Ed,* 1949, *18* 326, Herbert M Morais, *The History of the Negro in Medicine* (New York Publishers Co, 1967), pp 146–47

MEDICO-HISTORICAL NEWS AND ACTIVITIES

CORRESPONDENCE AND REPORTS

APPOINTMENTS IN THE HISTORY OF MEDICINE

Munich University. Paul U Unschuld has been promoted to full professor and director of the Institute of the History of Medicine of Munich University, West Germany He succeeds Professor Heinz Goerke, who is retiring from the post Professor Unschuld has published widely on the history of medicine in China and holds doctorates in both history of medicine and pharmacy and Chinese studies. His most recent publication is a translation and annotation of *Nan-Ching The Classic of Difficult Issues* (Berkeley. University of California Press, 1986). His colleagues at the Institute include Dr Kamal Sabri Kolta (Egyptian and Coptic medicine), Dr Juliane Wilmanns (Roman medicine as well as eighteenth- and nineteenth-century German medicine), and Dr. Wolfgang Locher (nineteenth-century Bavarian medicine).

GERMAN HOSPITAL MUSEUM AT OLDENBURG, WEST GERMANY

A non-profit corporation, "Deutsches Krankenhausmuseum Oldenburg" has been formed in order to establish a central institution devoted to the history of hospitals in Europe. The museum will be housed in the original building of the Peter Friedrich Ludwigs Hospital in Oldenburg. The hospital building, constructed between 1838 and 1841 with the patronage of two grand dukes of Oldenburg, is a fine example of the Classical style It has much architectural interest for hospital historians, and the complex of buildings that make up the present-day Peter Friedrich Ludwigs Hospital has grown up around it, a physical reflection of the development of hospitals and clinical medicine in Europe over the past 100 years. The museum, to be located in the right wing, will have some 750 square meters of exhibition space, as well as the use of an old canteen kitchen in the cellar, and the entire top story of the building

The project has been promoted by the German Society for Hospital History and the Society of the Friends and Patrons of a German Hospital Museum, both dedicated to research on the history of hospitals, and both currently headed by Dr Axel Hinrich Murken. It is hoped that this international hospital museum will also serve as a research and teaching institute. Initial plans are to have a permanent public exhibit relating to the most important developments in the history of hospitals and clinics, and to develop a medical history library from the current collection of the Society of the Friends and Patrons of a German Hospital Museum As the recently established sponsoring society includes not only public figures from the city of Oldenburg but also leading German national and regional representatives and well-known medical historians, there is good reason to believe that the German Hospital Museum will soon become a reality. For more information, write to "Deutsches Krankenhausmuseum Oldenburg," Peterstrasse 3, D-2900 Oldenburg, West Germany.

Bull Hist Med 1987, *61* 98–106

ANNOUNCEMENTS

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE

Call for Papers, 1988 Annual Meeting

The 1988 meeting will be held in New Orleans, Louisiana, 4 May–7 May Any person interested in presenting a paper at this meeting is invited to submit an abstract (*one original and five copies*) to the Chairman of the Program Committee Dr. Arthur J Viseltear, Section of the History of Medicine, Yale University School of Medicine, P O Box 3333, 333 Cedar Street, New Haven, Connecticut 06510. Any subject in the history of medicine is suitable for presentation but the paper must represent original work not already published or in press. Presentations are limited to twenty minutes The *Bulletin of the History of Medicine,* the official journal of the AAHM, reserves the right of first refusal of (but does not guarantee to publish) any paper presented at the meeting Abstracts must be typed single-spaced on one sheet of paper, and must not exceed 300–350 words in length. The following biographical information typed on a separate sheet is also required Name, title (occupation), preferred mailing address, work and home telephone numbers, present institutional affiliation and academic degrees. The deadline for submission of abstracts is *15 October 1987*

As in the past, the 1988 program will include lunch time roundtable workshops and poster sessions Those wishing to submit abstracts for these sessions should follow the instructions above regarding the submission of abstracts

The annual meeting has been approved for Continuing Medical Education (CME) credit in previous years

NATIONAL NEWS

American Institute of the History of Pharmacy. Gregory J. Higby has been appointed Acting Director of the Institute, effective 10 October 1986 Dr. Higby was formerly Associate Director, and has been associated with the Institute since 1981 He succeeds Professor John Scarborough, who resigned the position in order to direct his full attention to scholarly activities

College of Physicians of Philadelphia. The Section on Medical History's spring program includes. 12 March, Ruth Bleier, "Science and Medicine in the Social Construction of Women: From Aristotle to the Corpus Callosum" (The Kate Hurd Mead Lecture, co-sponsored by the Medical College of Pennsylvania), and 8 April, Stanley B Burns, "Philadelphia Physicians and the Development of Medical Photography" (The Samuel X. Radbill Lecture)

Cornell University. The University's Program in the History and Philosophy of Science and Technology, in conjunction with the Society for the Humanities, held a colloquium series called "Meaning and Order/Chaos and Chance" in the academic year 1986–87. Papers on the history of biomedical sciences included 17 September, "When Medicine Became Hot News. Pasteur's Triumph over Rabies," Bert Hansen; 19 November, "Phrenology in the Novels of Charlotte Bronte," Sally Shuttleworth; 11 February, "Toward a Social History of Patienthood," Sheila Rothman, 4 March, "Founding of the Eugenics Office," Garland Allen; and 11 March, "Language and

Ideology in Evolutionary Theory Reading Cultural Norms into Natural Law," Evelyn Fox Keller.

Eighteenth-Century Bethlehem Medical Practices. Charles A. Waltman has written a short local history about eighteenth-century medical practices in Bethlehem, Pennsylvania, one of a series of booklets about the town's history The 44-page, pocket-sized paperback is aimed at a popular audience but contains some primary source material For information, write to Oaks Printing Company, 195 Nazareth Avenue, Bethlehem, Pennsylvania 18017.

Epidemics, Pandemics and Mass Hysteria: From Antiquity to AIDS. A conference on this topic, presented by the Kauai Foundation for Continuing Education and the Hawaii Medical Association, is being held in Kauai, Hawaii, on 16–20 March 1987 Albert Sabin is to give the inaugural address, "The Fear of the Unknown." The first session will be devoted to the "History of the Great Visitations" and includes papers on various epidemic diseases in history, the second session focuses on Hawaii's historical experiences with infectious diseases and their destructive effects; the third session, entitled "Historical Hysteria" concentrates on society's reaction to epidemic infectious diseases The conference concludes with a colloquium on AIDS, covering both clinical aspects and ethical issues.

History of Medicine Division, NLM. The National Library of Medicine has recently published a short pamphlet, *A Biomedical Index to the Correspondence of René Descartes,* compiled by Thomas S. Hall Single copies are available to scholars without charge by addressing a request to. Chief, History of Medicine Division, National Library of Medicine, 8600 Rockville Pike, Bethesda, Maryland 20894

A film presentation entitled "Medicine and the Japanese. The Historical Context, from Antiquity to the Present," was sponsored by the History of Medicine Division on 16 January 1987.

Michael Harris gave a seminar on "Historical Research into the Forms and Technologies of Homeopathic Medicine" as part of the seminar series on 3 December 1986.

History of Science Society Unaffiliated Scholar Awards. The Society announces that it will grant amounts of up to $1,000 to persons trained in the history of science or related fields who are presently unemployed, unaffiliated with any institution making use of their training as historians of science, or affiliated with an institution only on a part-time or short term basis without prospects of continuation or renewal, to facilitate research and/or travel to prospective job interviews. Applicants must have received a Ph D. in the history of science, technology or medicine, or in a related field closely affiliated with history of science Membership in the History of Science Society is *not* a prerequisite, nor shall preference be given to applicants on the basis of age or previous academic or other affiliations. Applications may be submitted at any time Enquiries about the program should be directed to Dr Joseph W Dauben, HSS Coordinator of Programs, Department of History, Herbert H Lehman College, CUNY, Bedford Park Boulevard West, Bronx, New York 10468 (Tel 212-960-8289).

Johns Hopkins Institute of the History of Medicine. On 24 November, Roger Hahn of the University of California, Berkeley, presented a colloquium with the title "God·

That Superfluous Hypothesis" George Weisz of McGill University completed the fall series with his talk on "The Academy of Medicine and the Formation of the Medical Domain in Nineteenth-Century France" on 4 December The spring 1987 series began on 15 January with "Reflections on a Quarter of a Century of Medical Deanship," by Sherman Mellinkoff of UCLA, and was followed by "Reminiscences of My Father· Henry E Sigerist and the Institute of the History of Medicine," Nora Sigerist Beeson, on 29 January.

Johns Hopkins University. "A Magic Bullet? Research for Profit and the Growth of Knowledge in Germany circa 1900" was the subject of a colloquium given by Timothy Lenoir to the History of Science Department on 12 November 1986

Mayo Clinic. The History of Medicine Section is sponsoring the following lectures in the spring semester 28 January, "Mayo and the Military," Clark Nelson, 18 March, "Sir Victor Horsley: Founder of Neurosurgery," Edward Laws; 27 May, "Hippocrates," Hymie Gordon.

Medicine and the Imagination. The fall humanities series of the Johns Hopkins Medical Institutions was on the theme "Medicine and the Imagination. The Physician, the Individual, and Society" Speakers were Richard Sewall, Oliver Sacks, John Stone, Gregory Nagy, and Barbara Stafford The series is sponsored by the Johns Hopkins Committee on Cultural and Social Affairs

Microbiology Archives. The American Society for Microbiology announces that its Archives, located at the Center for the History of Microbiology in the Albin O Kuhn Library of the University of Maryland, Baltimore County, Catonsville, Maryland 21228, have been selected as the primary repository for the records of the International Union of Microbiological Societies (IUMS) The IUMS is a worldwide federation of national and international societies working together to advance microbiological sciences. The records include photographs, official documents, reports of the fourteen international congresses and papers of past Presidents of the IUMS

National Library of Medicine, Visiting Scholars Program. Thomas N Bonner has been appointed as Visiting Historical Scholar in the History of Medicine Division of the Library. Dr Bonner, who received his Ph.D. in history from Northwestern University, has had a long and varied career in higher education, including a period as professor of history and, most prominently, appointments at different times as President of the University of New Hampshire, Union College, and Wayne State University, as well as the Vice-Presidency of the University of Cincinnati He has now returned to teaching and holds the position of Distinguished Professor of History at Wayne State University.

Dr. Bonner has also written extensively, particularly in the history of education and the history of medicine His publications in the latter field include three books, *Medicine in Chicago, 1850–1950* (1957), *The Kansas Doctor* (1959), and *American Doctors and German Universities, 1870–1914* (1963) During his eight-months' residence at the NLM, he will be doing research for a comparative history of medical education in Germany, Great Britain and the United States

New York Hospital—Cornell Medical Center. The following seminars were sponsored by the History of Psychiatry Section in winter 1987 7 January, "Freud, Prof

Teufelsdröckh and the Garden of Eden," Peter J. Swales, 21 January, "Is Freud Yahweh? Is Jung Job?: Slowchower's Thesis Reconsidered," John Kerr; 4 February, "Philo's Interpretation of Dreams," Leon Hankoff; 18 February, "Descartes, Freud, and the Unconscious. Transparency of Mind and the Question of Interpretation," Earnest La Pore, 4 March, "Handel's Illnesses," William Frosch; and 18 March, "The Pathology of Normalcy. Erich Fromm's Philosophical Anthropology," Daniel Burston.

Society for Ancient Medicine and Pharmacy. The annual meeting took place on 27–30 December 1986, in conjunction with the Archaeological Institute of America, as part of the meeting of the American Philological Association Speakers were Lesley Ann Jones, "Hippocratic and Aristotelian Errors Concerning the Amount and Frequency of the Menses"; Peter Green, "Magic and the Principle of Visible Causality in Greco-Roman Medicine", and Michael J Harstad, "Aetius of Amida and Sixth-Century Byzantine Gynecology" The session was presided over by John Scarborough

UCLA Program in Medical Classics. Guenter B Risse gave a talk in the series entitled "Practicing Medicine in Edinburgh. William Cullen, 1760–1790" on 13 January 1987. The Medical Classics program focuses on major medical works

University of Alabama, Reynolds Historical Library. The annual Reynolds Historical Lecture was given by Robert J. T. Joy of the Uniformed Services University of the Health Sciences on 20 February 1987 Dr Joy spoke on "Dominique Jean Larrey Surgeon to Napoleon's Guard." Other lectures and seminars in the Library's series were: 21 November 1986, "Sex Research, the Thyroid, and the Pharmaceutical Industry," Robert L. Kroc, 12 January 1987, "The Emergence of Rheumatic Fever in the Nineteenth Century," Peter English, 10 March 1987, "Evaluation of the Chemotherapy of Acute and Subacute Bacterial Infections," Leon H Schmidt

University of California, San Francisco. Joel D. Howell gave a lecture entitled "Machines and Medicine Technology and the American Hospital, 1890–1930" on 1 December 1986 The talk was sponsored by the Department of History and Philosophy of Health Sciences.

University of Delaware Press—Manuscript Competition. The University of Delaware Press is offering a new $1,000 award for the best book-length manuscript submitted in the fields of history of science, medicine or technology. The award's scope encompasses studies of specialized developments and their intellectual histories, as well as the social and cultural aspects of the three fields. Manuscripts must be submitted before *30 September 1987.* For details and an entry form, write to History of Science, Medicine, and Technology Competition, University of Delaware Press, 326 Hullihen Hall, Newark, Delaware 19716 (Tel 302-451-1149)

University of Virginia, Claude Moore Health Sciences Library. Speakers in the Health Sciences lecture series for the spring are. 12 February, W. Curtis Worthington, "Town and Gown in the Medical Center in the Early Nineteenth Century The Charleston Experience", and 9 April, John Parascandola, "The Search for Magic Bullets: Chemotherapy in the Twentieth Century."

Western Society for French History. The fourteenth annual conference was held in Baltimore on 19–22 November 1986, and sponsored by the Johns Hopkins University. It included the following papers on medical history topics: "Politics, Prostitution and the Pox in Revolutionary Paris," Susan P. Conner, and "The Female Body and the Law: Napoleonic Medicine on Trial," June Burton, commentator Isser Wolloch, in a session chaired by Harriet B Applewhite, "Public Assistance and Medical Politics in the Haute-Garonne, 1895–1914," Martha L Hildreth, "Physicians and Day-Care Centers in Nineteenth-Century Paris," Ann F La Berge, and "Medicine, Morality and Degeneration The Medical Discourse in Nineteenth-Century France," J C Coffin, commentator Jack D Ellis, in a session chaired by Caroline Hannaway, "Medical Journalism and Social Reform in the French Enlightenment," Nina Gelbart and "LaMettrie's Medical Satires An Argument for Enlightenment Reform," Kathleen Wellman, commentator Toby Gelfand, in a session chaired by David Vess; "Social Rehabilitation or Social Control Hôpital Général of Paris, 1656–1692," Richard Elmore, commentator Alan Williams, in a session chaired by Sarah Hanley, and "French Revolution in the Eyes of Two Swiss Physicians," Antoinette Emch-Dériaz," commentator Roger Hahn, in a session chaired by Ronald Caldwell

PROGRAMS OF MEETINGS

Johns Hopkins Medical History Club, Baltimore, Maryland

January 8, 1987 "Cardiac Anatomy From Lower to Mall," Thomas A. Traill

February 12, 1987· "Isolated Hearts and Mechanistic Physiology," Robert Y. Oikawa

Mayo Foundation History of Medicine Society, Rochester, Minnesota

January 14, 1987. "On the Periphery: E L Scott and the Discovery of Insulin," Alexander R. Miller

Society of Medical History of Chicago

November 18, 1986. "Trigant Burrow, M D Phylobiology and the Founding of Group Therapy in American Psychiatry," Thomas H. Jobe

December 9, 1986 Special session in remembrance of Joseph Kiefer, past president of the Society

February 3, 1987· "Reflections on Death in Zanzibar Do Arabs Get Malaria?" Ibrahim Sundiata

Washington Society for the History of Medicine, Bethesda, Maryland

November 20, 1986 "Mom and Dad (1945) Venereal Disease Education or Exploitation?" Suzanne R. White; and "The Clandestine Medical Faculty in Warsaw, 1939–1944," Witold J. Rudowski

January 15, 1987. "Silent Travelers Genes, Germs and the 'Immigrant Menace' " Alan M. Kraut, and "Radium. Mining and Medicine," Edward R. Landa

NEWS FROM ABROAD

Australian Society of the History of Medicine. The newly established national society of the history of medicine has drawn up its constitution and has appointed the following officers. Bryan Gandevia (President), Diana Dyason (Vice-President), Harold Attwood (Secretary), and Geoffrey Kenny (Treasurer) A council representing all states and territories has also been appointed The Society's aims will be to encourage study and teaching in the history of medicine in Australia and the development of critical standards in the field, and the organization of conferences, meetings and discussion groups in the history of medicine Membership is open to all persons interested in the history of medicine and the annual subscription is $Aust 15.00 Enquiries may be addressed to Professor Harold Attwood, Medical History Unit, University of Melbourne, Parkville, Victoria 3052, Australia.

Austria The *Bulletin* notes with regret the death of Professor Erna Lesky in Innsbruck, Austria, on 17 November 1986 An obituary will appear in a forthcoming issue

Birth of Modern British Medicine A symposium with this title will be held at the Royal Institution Centre for the History of Science and Technology from 16–18 September 1987 The symposium will focus largely on British medicine circa 1780–1840 and its new relationship to science and institutions The second circular, giving details of the conference, may be obtained from Dr. Frank James, RICHST, The Royal Institution, 21 Albemarle Street, London W1X 4BS, England, U K

Brazil The fifth Pan-American Congress, second Portuguese-Brazilian Congress, and seventh Brazilian Congress of the History of Medicine all took place together in Rio de Janeiro from 30 November–5 December 1986. Topics discussed included the history of public health in the Americas, Portugal and Brazil, history of charitable hospitals, particularly the Hospital de Santa Casa da Misericordia (in Rio de Janeiro), and the history of military medicine, medical specialties, pharmacy, veterinary medicine, Academies of Medicine and medical societies, and biographical and bibliographical studies. Dr Ivolino de Vasconcellos of the Instituto Brasileiro de Historia da Medicina served as President of the Congresses

Canada Charles G. Roland has been appointed editor of the *Canadian Bulletin of Medical History,* the journal of the Canadian Society for the History of Medicine Dr Roland is Jason A Hannah Professor of the History of Medicine at McMaster University, Hamilton, Ontario, and a former senior editor of the *Journal of the American Medical Association* He succeeds the founding editor of the *Canadian Bulletin,* Kenneth Roberts of the Memorial University of Newfoundland

Great Britain—Medical Archives and Manuscript Survey. The Wellcome Institute for the History of Medicine is undertaking a survey in order to locate and register archive and manuscript resources relevant to the history of medicine which are open to public access in the British Isles The aim of the survey is to consolidate information on available resources nationwide at a single point of enquiry The survey will cover all aspects of health and disease from 1600 to 1945, including professional and personal papers of individuals and institutions, local and central government records, and private papers with significant medical content The results of the survey will be entered into a reference database and will eventually be published in book form (around 1990). For more information, write to Ms Janet Foster, Senior Research Archivist, Wellcome Institute for the History of Medicine, 183 Euston Road, London NW1 2BP, England, U K

India The first international seminar on Unani medicine was held from 13–15 February 1987 in New Delhi The conference was sponsored by the Central Council for Research in Unani Medicine, an organization under the auspices of the Ministry of

Health and Family Welfare The theme was "Unani Medicine and the Goal of Health for All by the Year 2000" and topics included the history of Unani medicine, its literature, clinical research, use of drugs, and methods of therapy. The role of other traditional medicines in primary health care was also discussed

International Society for the History of Medicine. The Society's thirty-first congress will take place at the University of Bologna, Italy, from 30 August–4 September 1988. Topics on the provisional program include the history of the medical school of Bologna, the history of the cardiovascular system, the history of neurology and psychiatry, facial and plastic surgery, dentistry and orthodontics, and the usual varia.

The Netherlands. Members of the Society for History of Medicine, Mathematics, Natural Sciences and Technology met at The Hague on 25 October 1986. The program included two papers of interest to medical historians "18e Eeuwse chirurgische instrumenten in de collectie van de Leidse Universiteit," K. S Grooss, and "Het leven van dr T Eernstman, arts, Gen. maj Tit K.N I L (1865–1950), schrijver van het 'Vademecum voor den Praktizeerenden geneesheer in Nederland en de Koloniën,' " T. Eernstman

Royal Society of Medicine. The Section of the History of Medicine's spring program included a joint meeting with the Osler Club of Sir Geoffrey Keynes, and a day-long symposium on "The Management of Pain The Historical Perspective"

Society for the Social History of Medicine, Great Britain. The Society sponsored a spring seminar series on "Witchcraft, Magic and Medicine" at the Institute for Historical Research, London Presentations in the series included: 16 January, "Elena 'Draga' and Popular Healing," Ruth Martin, and "Fear Death by Water Girolamo Donzellini and Learned Medicine," Richard Palmer, 30 January, " 'The Demoniacke World' Possession, Exorcism and Eschatology in Early Modern Europe," Stewart Clark; 13 February, "Therapeutics and Magic in Early Modern England. Rocks, Plants and Animals," Andrew Wear, 27 February, "Witchcraft and Illness in Early Modern England," Lucinda Beier; and 13 March, "Medicine and the Decline of Magic," Roy Porter

Switzerland. Members of the Swiss Society of the History of Medicine met in Bern as part of the 166th annual assembly of the Swiss Academy of Sciences on 9–12 October 1986 Dr. Louis Premuda of Padua, Italy, delivered the Markus Guggenheim-Schnurr Address. His topic was "Die anatomisch-klinische Methode Padua-Paris-Wien-Padua."

Wellcome Institute for the History of Medicine. The history of the pharmaceutical industry was the focus of a symposium held at the Wellcome on 30 January 1987. The following papers were given: "Making Drugs for the Early Consumer Society," Roy Porter; "The Early History of the Wellcome Research Foundation," Rosemary Milligan and E M. Tansey, "The 'Preposterous Provision' The American Society for Pharmacology and Experimental Therapeutics' Ban on Industrial Pharmacologists, 1908–1914," John Parascandola, "The British Pharmaceutical Industry in International Context," Jonathan Liebenau, "Some Aspects of the History of the French Pharmaceutical Industry, 1919–1939," Michael Robson, "Pharmaceutical Research in the I. G. Farben," Gottfried Plumpe, and "Strategy and Tactics Glaxo after 1945," Richard Davenport-Hines

The history of hospitals research seminars and the joint research seminar with University College, London, on science, medicine and technology in Islamic civilization continued.

FELLOWSHIP OPPORTUNITIES

Johns Hopkins Institute of the History of Medicine. The Institute is offering *postdoctoral fellowships* for research in the history of twentieth-century medicine The stipend range is from $24,000 to $30,000, depending upon experience and accomplishment Fellows are expected to participate in the activities of the Institute. The deadline for applications is *15 April 1987* Fellowships may begin any time after 1 July 1987 Send research proposal, curriculum vitae, and three letters of recommendation to Dr Gert H. Brieger, Director, Institute of the History of Medicine, The Johns Hopkins University, 1900 East Monument Street, Baltimore, Maryland 21205

ACOG-Ortho Fellowship. The American College of Obstetricians and Gynecologists is pleased to announce that the recipient of the 1987 ACOG-Ortho Fellowship in the History of American Obstetrics and Gynecology is Alan H DeCherney of Yale University School of Medicine. Dr. DeCherney will pursue historical studies on the diagnosis and treatment of infertility

Competition for the 1988 award is now open. A stipend of $5,000 is provided to defray expenses while the recipient spends a month working in the ACOG historical collection, continuing research on some area of American obstetrical or gynecological history. Applications for the 1988 award will be accepted until *1 September 1987* For further information and application forms, write to Ms. Gay Takakoshi, Librarian, Historical Collection, American College of Obstetricians and Gynecologists, 600 Maryland Avenue SW, Washington, D C. 20024-2588 (Tel 202-638-5577)

BOOK REVIEWS

SANDER L GILMAN *Difference and Pathology: Stereotypes of Sexuality, Race and Madness* Ithaca, New York, and London Cornell University Press, 1985 292 pp Ill. $34 95 (cloth), $12 95 (paperbound)

The ambitious stated goal in the introduction to this inquiry—to write a "natural history" of medical stereotyping—finds its Rankean echo in the author's concluding remark that he has sought "to understand how it really was perceived " While the ten intervening essays, notwithstanding their convergent themes and cross references, do not coalesce into a unified synthesis, they do present fascinating historical case studies of pathological stereotyping on the basis of sexuality and race.

Sander Gilman believes the creation of stereotypes of the "Other" is an inevitable universal psychological habit. Pathological stereotypers, however, are unable to temper their preconceptions in the light of empirical experience. On the contrary, for them, further evidence serves only to reify and harden their original bias How this model of individual psychopathology can be extended to account for social stereotyping and disease stigmatizing by communities of seemingly "normal" medical scientists and philosophers is a problem Gilman does not address, and one which I think cannot be adequately explained within the framework of individualist psychology or psychoanalysis

The objects of discussion in this collection are women, blacks, and Jews, and the type of pathological label is nearly always some form of mental illness, often of a sexual or degenerative nature Gilman displays considerable erudition ranging freely over European and American sources from all time periods, but he is clearly most familiar with Germanic culture of the late nineteenth and twentieth centuries. He makes extensive use of iconography (the book is well illustrated with seventeen plates) in addition to literary texts of all kinds from pornography to the high classics and especially psychiatric, medical, and anthropological treatises Pride of place belongs to Sigmund Freud as influential historical spokesman, text to deconstruct, and for the psychohistorical approach adopted by Gilman

With the above as basic elements, the essays spin out various combinations and permutations images of the sexuality of young girls and prostitutes in Freud's Vienna, the black female's genitalia, steatopygia, and prostitution using as a point of departure the case of the so-called Hottentot Venus who toured Europe in the early nineteenth century, black sexuality, blacks and madness, Jews and madness, Freud and the Jewish (Yiddish) joke, madness and artists and artists as Jews in Weimar Germany, and even images of the Jews as blacks and perverted females

There is much here that is original and perceptive along with much derivative from other scholars Gilman's knack of mixing scientific with artistic "discourse"—his analyses of I.J Singer's novel, *The Family Carnovsky* (1943) and Manet's portrait of Zola's *Nana* are but two examples—sometimes produces brilliant results On a more prosaic plane, he makes accessible to the English reader (often with lengthy quotations) selections and interpretations of significant but poorly known figures such as Eduard Reich, a mid-nineteenth-century German physician-philosopher of sexuality and public health At other times, the scholarly display threatens to crowd

Bull Hist Med 1987, *61* 107–148

out understanding of the argument as reference upon reference to obscure secondary sources fill the footnotes.

The strengths and flaws of this collection are visible in what I consider its most substantial essay (also one of the longest and, apparently, one of the few not already published elsewhere) "Sexology, Psychoanalysis, and Degeneration" Here Gilman makes a suggestive if somewhat speculative case for regarding the late nineteenth-century nervous disease construct "neurasthenia" as the historical successor, in a sense, to masturbation as the point of entry on the royal road to all forms of insanity linked to sexual etiology. Later he points out how syphilis, which likewise became more prominent in late nineteenth-century degeneration theory, functioned as the public exogenous analogue to the private endogenous vice of masturbation. Freud is portrayed here as elsewhere in the volume as a figure of decisive if not heroic proportions in the history of liberating Western thought from older stereotypes, in this instance, by rejecting his own and the dominant French background of deterministic hereditary degeneration In his evident enthusiasm for Freud, at one extreme, and his disdain for Lombroso et al at the other, Gilman strikes a normative tone that I did not find particularly helpful in understanding the men or problems in historical context In this respect, the failure to cite two relevant and eminently historical discussions, Robert Nye's monograph on degeneration in *fin-de-siècle* French thought (Princeton, 1984) and Charles Rosenberg's article on American neurasthenia (*Bull Hist. Med,* 1962, *36* 245–67) appears symptomatic of a certain haste to draw historical lessons

There are a number of minor but collectively troubling instances of inaccuracy and carelessness scattered throughout *Difference and Pathology.* A meeting of anthropologists in the midst of the French Second Empire is assigned to the Third Republic (p. 153). Supporting the statement " nineteenth-century psychiatry saw *all* blacks whether male or female, as especially prone to hysteria" (p 119), are two references to early twentieth-century works, one not specifically on blacks and the other not on hysteria. Why a discussion of black female imagery in D. H. Lawrence, Henry Miller, and Lawrence Durrell should be entitled "Paris" is not clear. And, finally, this reader, despite the pictures, could not see what was meant by "Darwin's ear," identified as "a sign of the atavistic female (p 102)," but left undescribed in the text

In summary, this is a provocative work that will reward critical and cautious reading Without denying a transhistorical reality to mental illness, the author vividly illustrates its status as a culturally specific construct In this capacity, mental pathology (and I would add pathology in general) has been a labeling device applied to social outgroups. How the labelers and the objects of labeling collaborated or conflicted in the creation of disease entities deserves further attention from historians.

Reviewed by TOBY GELFAND, Hannah Chair in the History of Medicine, University of Ottawa, Ottawa, Ontario, Canada.

JACQUES POSTEL and CLAUDE QUÉTEL *Nouvelle histoire de la psychiatrie.* Toulouse, France. Editions Privat, 1983 774 pp F370,00 (paperbound)

The novelty of this "new history of psychiatry," Jacques Postel and Claude Quétel tell us in their introduction, lies in its interpretive posture. In an era in which psychiatry is "entirely in flux, its nosographical framework collapsing and its therapeutic institutions all called into question" (p. 9), valuable perspective can be gained, they believe, by avoiding both of the extremist renditions of psychiatry's past that have hitherto dominated the field. the whiggish, self-congratulatory accounts put forth by the psychiatric establishment and the blanket denunciations associated with the enterprise that the French call anti-psychiatry

The open-mindedness and absence of parti pris that Postel and Quétel recommend do characterize this hefty volume—as is clearly indicated by the fact that the views of Michel Foucault are sometimes endorsed (p 155) and sometimes criticized (pp. 305, 404). But the *Nouvelle histoire de la psychiatrie* is otherwise far from a unified work. More than forty collaborators have contributed articles of widely varying length to it, and their subjects range, chronologically, from Greek antiquity to the present and, geographically, from Africa to Brazil. In addition, the collaborators have approached their task from different disciplinary standpoints. The majority are practicing psychiatrists, like co-editor Postel, most of the others are academics, trained either in history, like co-editor Quétel, or in philosophy An illustrated biographical dictionary of important psychiatrists and psychiatric precursors occupies the last quarter of the volume The reader, then is presented with something between a reference tool and a potpourri

As a reference tool, the *Nouvelle histoire* succeeds admirably in certain respects and less well in others Perhaps its greatest virtue is that it reflects and epitomizes the richness of current French scholarship on the history of French psychiatry, an area in which its two editors are major figures Thus a half dozen articles by Quétel treat incarcerative and therapeutic procedures from the seventeenth through the nineteenth centuries, Postel writes on Philippe Pinel and on the new nineteenth-century diagnostic categories of general paralysis and the neuroses, Georges Lanteri-Laura discusses developments in the study of the brain and nervous system from Gall's phrenology to our own day There are also articles on things French by less well-known (to this reviewer, at least) French scholars, including a fine piece by the classicist Jackie Pigeaud on the Greco-Roman roots of the work of the psychiatric pioneers Pinel and Esquirol

The weakness of the volume is the obverse of its strength Despite the expectations raised by the generality of its title, the *Nouvelle histoire* has distinctly Gallocentric tendencies. To be sure, its section on psychiatry "dans le monde" briefly introduces material about far-flung places. But especially with respect to the late eighteenth and nineteenth centuries—the formative period of modern psychiatry and the subject of over half the text—France receives top billing and a well-developed historiography about Britain and the United States is given rather short shrift. Thus, for example, an article entitled simply "La construction des asiles" confines itself to asylum-building in France. Postel's article on the moral treatment begins with a paragraph on the "impropriety" of giving Pinel all the credit for this critical therapeutic innovation (p 147) but then, citing the cultural centrality of Paris at the time, goes on to discuss Pinel and his school exclusively Since Pinel acknowledged foreign inspiration and initially even referred to British practitioners of the moral treatment as his rivals, a more international approach to this topic would certainly have befitted an international history of psychiatry

But Postel, Quétel and their collaborators have crammed a wealth of information between two covers, and historians consulting this book for general orientation or for specific research leads are unlikely to come away empty-handed

Reviewed by JAN GOLDSTEIN, Department of History, University of Chicago, Chicago, Illinois

EDWIN R. WALLACE IV *Historiography and Causation in Psychoanalysis: An Essay on Psychoanalytic and Historical Epistemology.* Hillsdale, New Jersey: The Analytic Press, 1985. xv + 285 pp. $29.95 (Distributed by Lawrence Erlbaum Associates)

Psychoanalysis is always more than a mere therapeutic technique for psychical disturbances Philosophers and historians have been attracted by the theoretical background of psychoanalysis since its very beginnings. In his new essay on psychoanalytic and historical epistemology, Edwin R. Wallace IV elucidates some of the main points of controversy that entangle the foundations of both historiography and psychoanalysis.

The first part, "historiography," starts with a discussion of the general relationship between theory and data Wallace puts forward a pragmatic and conciliatory standpoint that is obviously based on his clinical experiences Extracts from psychoanalytical interviews and case reports illustrate the author's thesis. he maintains the necessity of theoretical interpretation in order to realize the structure and meaning of psychological data gained by phenomenological methods. He rejects so-called atheoretical or "existential" therapeutic systems and points out their inherent but denied theories.

Freud's classic case histories like the "Rat Man" and his later historical works (*Totem and Taboo*) form the background for a debate on "positivism versus historicism." The author emphasizes that Freud's models cannot be interpreted as an ahistorical concept, although Freud concentrates on the individual psychical reality. In the question of "covering laws" Wallace again argues for a balanced standpoint between "probabilistic regularities" and "a healthy respect for the infinite variability of human behavior" (p 57)

The author perceives the similarities of historiography and psychoanalysis in the interactive relationship of the analyst/historian and data acquired from patients or historical sources Wallace shows his affinity to a "present-centered" historiography; nevertheless, he opposes a superficial presentism

Criticizing the ideas of Schafer and Ricoeur explicitly, the author confirms the real existence of historical truths and the possibility of objective knowledge both in historiography and psychiatry. For Wallace the approximation and correspondence theory of knowledge is still the most adequate and practicable concept. In the dispute about "idealism versus realism," the author acknowledges methodological and "relativizing" factors, however, he is far from supporting any scientific scepticism

The second part of Wallace's book—"causation"—begins with an informative survey of the main concepts of determinism in philosophy and history. An enormous number of scholars from Aristotle to Schafer are discussed in detail Wallace again presents a pragmatic solution for the problem of causation He states that in retrospect all observable behaviour is caused by the actors' conscious or unconscious motives. The question of predictability or inevitability must not be identified with the scientifically rational search for reasons and effects

Freud's biological and psychological concepts of causation, and their philosophical (Kant, Hume, Herbart) and physiological (Müller, Brucke) sources, are exemplified by quotations from his works and lectures. Wallace strictly refutes the critique of psychic causality and historic determinism proposed by Ryle and Schafer. The author ends this part of his book with a discussion about the "free will versus determinism" dichotomy He marks this classic philosophical problem as invalid, the real dichotomy should read "conscious versus unconscious"

Wallace's monograph appears not intended to present any new concepts in historiography or psychoanalysis, rather, the author defends necessary foundations of pragmatic and successful therapeutic intervention and historical research in a very sophisticated way. The historian might criticize the domination of psychoanalytic examples, although they are the illustrative background of the author's ideas

Reviewed by MATTHIAS M. WEBER, Max-Planck Institut für Psychiatrie, Munich, West Germany.

THOMAS S CHEN and PETER S CHEN *Understanding the Liver: A History.* Westport, Conn., and London. Greenwood Press, 1984 (Contributions in Medical History, no 14). 293 pp $45 00

The liver is the largest organ in the abdominal cavity, and its meaning has long been a subject for contemplation During past centuries, the liver has been variously perceived as the seat of man's soul, the center for an emerging science of physiology, and the appropriate organ to study for understanding viral diseases. The book at hand chronicles mankind's understanding of that organ in five chapters, each describing different aspects of concepts about the liver. its anatomy, physiology, metabolism, disorders, and therapy Each chapter (or section within the chapter) is arranged chronologically. Unfortunately, the chapters are not well integrated. Moreover, when the discussion moves into the twentieth century, the text becomes a dense mass of names and dates Two appendices list landmark events in the study of the liver, and there are almost seventy pages of notes

Although it accomplishes its aim, to chronicle "important" (by present-day understanding) events in the study of the liver, had the authors not focused their attention so tightly on this organ the book could have been stronger. To take but one example, Babylonian hepatoscopy, divination of the future from liver anatomy, is discussed (chap. 1) without considering how this procedure related to prediction of the future from dissection in general Babylonians used omens from a wide range of organs and signs, the liver was but one In this case, the authors might have been aided by consulting Sigerist's *History of Medicine,* one of many standard works that would have helped in writing this book. One of the authors' limitations is that they do not place ideas about the liver into the larger context of medical ideas Such an approach seems particularly misleading because, as the authors point out at the end of the book, organizations and journals devoted to the liver are a relatively recent, late twentieth-century innovation The invention of hepatology would be an interesting topic for future study.

Another problem is that the authors, in describing how we have come "closer to the truth" (p 127), search for modern concepts about the liver in historical contexts within which they are hardly appropriate *Pace* Chen and Chen, Hippocrates did not describe "cirrhosis." He described a "scirrhous liver," a concept which held a very different meaning for the Greeks (and that is the important part) than "cirrhosis" did for Laennec in 1819, and Laennec's meaning of "cirrhosis" differs from what that term means to us today. Again, integrating understanding about the liver into the broader context of the history of medical thought would have helped.

My criticisms notwithstanding, this is a useful book, one of very few that attempt to deal with the internal content of medicine in the twentieth century It brings together over 4000 years of names and dates not easily accessible elsewhere But it lacks thematic coherence. This is an annotated bibliography, a start, not a finished product.

Reviewed by JOEL D. HOWELL, Department of Medicine, University of Michigan, Ann Arbor, Michigan

GIUSEPPE ROCCATAGLIATA. *A History of Ancient Psychiatry.* Westport, Conn., and London Greenwood Press, 1986 (Contributions in Medical Studies, no 16) viii + 296 pp. $45 00

I turned to this book with high hopes. I had just finished a survey article, with annotated bibliography, on the history of psychiatry in classical antiquity, and concluded that there was no one good book in English to recommend on that subject Fortunately, there now is *a* book on the subject, Roccatagliata's *A History of Ancient Psychiatry,* and the book will be of some use. Unfortunately, it is not a very good book, and its usefulness for the interested reader is limited by considerable deficiencies.

Starting with the venial, though still annoying, I note that it is not clear if the book was written first in English, or in some form or other in Italian, and then translated, or "rendered" into English. It is awkwardly written, and reads either as a poor translation or as book written by someone with an inadequate command of the language. Second, and this is a problem with any scholarly work in another language, the references are mainly to Italian books and Italian editions and/or translations of classical works This considerably reduces its utility as a source book for the English reader. The bibliography also has too many errors of spelling and citation for a scholarly book

More serious is the inadequate use of existing scholarship. Apart from not noting this reviewer's book, (*Mind and Madness in Ancient Greece,* 1978), a really serious omission is that of Leibbrand and Wettley's *Der Wahnsinn,* a work which truly should be translated into English. *Der Wahnsinn* not only has a wealth of detailed and profound material about mental illness in antiquity, but it addresses the significant methodological problems which beset this book

The main problem facing the historian of psychiatry in antiquity is that of knowing what to write about What in antiquity belongs to psychiatry, a field which did not exist as a medical speciality until probably the early nineteenth century? Of necessity, one must begin with some working definition of what constitutes the field of psychiatry today, and then look for precursors or relevant material in antiquity. This approach obviously has its advantages, but it carries the danger of "preformationist" readings of much of the ancient material, that is, not appreciating the material in its "native" context, and perhaps incorrectly claiming distinguished ancient ancestry for modern concepts or methods. Everyone who has written in this field, whether mental health professional, classical scholar, or historian of medicine, has explicitly or (much worse) implicitly used some definition of what is psychiatry. There is no way around this problem, other than frank recognition, willingness to consider the ideas of others, and specification of what an author defines as the field whose history is being written. Also, no one has gotten it just right, including this reviewer. There can be and are errors in the other direction too, such as not having any clear concept of the field, with the result that the ancient material gathered is a hodge-podge of the important and the irrelevant.

This book errs disastrously in the direction of presuming clear similarities and connections between antiquity and the present. A statement in the preface (p. vii) epitomizes this problem: "After Hippocrates the philosophical trends related to the names of Socrates, Plato, and Aristotle provided the psychiatrist with models for creating definite psychopathological paradigms." Paradigms, perhaps, but psychiatrists, no! The assertion a few lines later that "Ancient psychiatry thus emerges as a definite discipline with its own methodology and lines of research" adds insult to injury. Unfortunately, the spirit of these distortions hovers over the entire book, and it gets worse as the book goes on. There is very little critical thought given to the problems of methodology. Problems long debated by historians of science and of medicine, such as the nature of empirical research and of observation in ancient medicine, are almost totally glossed over. The several books by G. E. R. Lloyd on ancient science and medicine put out in the last few years by Cambridge University Press would have been useful correctives for some of the deficiencies in this book.

These problems are particularly distressing because there is so much that is good in this book. The author is learned, has worked hard, loves his subject matter, and has tried to consult a variety of sources. The book includes a great deal of material ranging from Homeric to the Byzantine and early medieval periods. Reading it from cover to cover would give a reader with limited background knowledge some sense of the range of thought and activity in antiquity. It includes all, or close to all, the major names, and, for better or worse, it will be used as a source to learn what one needs to know for the few questions on certifying exams in psychiatry that deal with history of psychiatry. Hence, it could have been a much better book, for the ingredients are there. The enterprise of writing the history of psychiatry is a problematic one, and I do not fault the author for not mastering what no one in the field has, but rather for not achieving what could have been done.

Finally, I think the publisher deserves credit for bringing this book out, but also blame for not giving the author enough advice and guidance on what would have made it a really good book. It does not match the quality of other books in the series, "Contributions in Medical Studies."

Reviewed by BENNETT SIMON, Department of Psychiatry, Harvard Medical School at the Beth Israel Hospital, Boston, Massachusetts

P. H. SCHRIJVERS (ed.). ***Eine medizinische Erklarung der männlichen Homosexualität aus der Antike*** (Caelius Aurelianus, ***De morbis chronicis*** IV 9). Amsterdam: B. R. Grüner, 1985. 75 pp. $12.00 (paperbound).

This monograph is a translation of and commentary on Caelius Aurelianus's *De morbis chronicis* IV 9, a short but intriguing chapter concerning *molles sive subacti,* those who play the passive role in male homosexuality. The subject is hardly mentioned elsewhere in ancient medical literature.

Since Caelius's work is a Latin translation (or adaptation) of a lost Greek work by Soranus (2nd century A.D.), Schrijvers is in part concerned with establishing what is Caelius's contribution and how he altered Soranus's original text. And in part he is concerned to explain what Soranus/Caelius say about male homosexuality and to trace the sources of their views. Chapter IV 9 opens with a description which involves what Schrijvers properly styles *"captatio benevolentiae."* It expresses horror and revulsion at the condition in order to reassure the reader and gain his good will, saying that some people even doubt its existence. "It does not come naturally into human behavior, but lust (*libido*) puts shame aside and dedicates to obscene purposes parts not so intended." Lack of measure in desire and inability to be satisfied cause homosexuals to reject their place in the world. "For," Caelius's text adds, "divine providence has dedicated the parts of our bodies to definite duties." Schrijvers concludes that the invocation of divine providence has a Christian overtone, and must have been added by Caelius. But he argues that the general tenor of the passage accords with late Stoic notions, and, although we would expect the skeptical Methodist to reject teleology (Soranus explicitly criticizes those who talk of Nature's foresight in connection with menstruation, *Gyn.* 1.27), Schrijvers finds it likely that Soranus expressed a view of normalcy and of male homosexuality near to that of Caelius. He adduces the view of sexual ethics in Soranus's *Gynecology,* most tellingly from the discussion of virginity (*Gyn.* 1.30–32). There, Soranus says that sexual congress is harmful to both men and women (and he cites his own *Hygiene,* now lost, for proof). But in accord with Nature, says Soranus, people engage in it to maintain the succession of living beings.

Schrijvers's discussion and analysis of this material is illuminating, and, I think, correct. I am less satisfied with his conjecture that Caelius has suppressed a doxographical section of Soranus's text which would have recorded previous physicians' discussions about causes of the disease, physical or mental, e.g., views like that of Pseudo-Aristotle, *Problems* 4.26 that abnormal seminal ducts (i.e., they go to the anus) produce such desires (Schrijvers suggests that *pudor* caused Caelius to suppress such titillating material.) But I think that there is a better way to explain the paucity of doxography as well as other oddities in Soranus's account. We should note, first, that homosexuality appears in the section of *Chronic Diseases* devoted to intestinal diseases, and that Soranus/Caelius cites only Clodius (1st century A.D.) as offering therapy, a therapy which Soranus/Caelius rejects as a treatment for intestinal worms. It appears that Soranus began from a work or works which classed homosexuality among physical maladies. He himself argues strongly that it is a mental disease with no physical component, but prior discussion of the nature and cause of homosexuality was very slight, and medical doxography was not there for Soranus to report. That fact also may explain why Soranus instead cites Parmenides' poem which explained homosexuality as a congenital condition, and why he refers to *multi sectarum principes* who considered it both unnatural and inherited, a philosophical view which Soranus rejects. Soranus's own views seem to be original with him. Soranus/Caelius's treatments of satyriasis and priapism similarly lack doxography and depend on shallow medical tradition.

Schrijvers improves the text in several places and corrects some interpretations by Drabkin and other translators. His is a useful contribution to the study of Caelius and Soranus, as well as of ancient views of homosexuality.

Reviewed by WESLEY D. SMITH, Department of Classical Studies, University of Pennsylvania, Philadelphia, Pennsylvania

Stephanus of Athens: Commentary on Hippocrates' Aphorisms, Sections I–II. Text and translation by LEENDERT G. WESTERINK. Corpus Medicorum Graecorum, XI, 1, 3, 1. East Berlin: Akademie Verlag, 1985. 257 pp. M78,00.

Apart from the *Oath,* few works of the Hippocratic collection have had the viability of the *Aphorisms.* Covering almost all branches of medicine, the short, pithy dicta have had much to offer clinicians far into modern times. The ancient commentators did not doubt the genuineness of the work (cf. p. 31), a certainty we no longer share.

"Stephanus of Athens the philosopher" as his name appears on the title of the commentary (p. 29) was also the commentator of the Hippocratic *Prognostic* (now edited and translated by J. M. Duffy for the Corpus Medicorum Graecorum [XI.1.2, 1983]). He probably lived toward the end of the sixth century and belonged to the Alexandrian commentators who lectured on Hippocratic and Galenic works, much in the fashion of the Aristotelian commentators. Like many of these scholastic teachers, he prefaced his commentary by a discussion of eight points: scope of the work, its usefulness, genuineness, title, place in the curriculum, division into parts, the branch of medicine to which it belonged, and its form of presentation.

Fragments from Stephanus's commentary had been published by F. R. Dietz in his edition of the *Scholia in Hippocratem et Galenum* by various authors (Koenigsberg: Borntraeger, 1834, 2: 236–544). Westerink deserves much credit for having unscrambled the complicated manuscript tradition. In his opinion, sections I and II of the commentary, which the present volume contains, have come down to us in an abridged and revised version (pp. 13–16). This is unfortunate, because we cannot be sure whether the words "with God's help" (pp. 29 and 137) belong to Stephanus or to the Byzantine editor. The only other hints that Stephanus may have been a Christian occur on p. 123 where he says "only God knows everything" and on p. 231, where he asserts that even in the case of a severe and all but hopeless stroke the cure must be attempted, because "if it is the will of the Higher Power" and "if chance (*tychē*) is favorable," the patient may recover.

The translation is reliable and reads very smoothly. At times it is refreshingly bold, for instance when Westerink does not shy away from translating *pneuma* by the anachronistic "gas" (e.g., p. 50, 17: *empepneumatómai:* "I have gas on the stomach") or to write "a man belongs by birth to the top rank of society" (p. 62, 32: *akron einai eugenē*). Perhaps it is going too far to say "the temperature rose" (p. 84, 22: *ethermanthē*), that bodies "lose weight" (e.g., p. 150, 36: *leptunomena sōmata*), and that many people see their doctors "because of overweight" (p. 216, 4: *dia baros tou sōmatos*). Such expressions may conjure up notions of temperature as an objective physical quantity and of watching one's weight with the use of scales.

Following the first two introductory aphorisms (on medicine and the condition of its practice), the aphorisms deal mainly with matters of dietetic medicine and prognosis. Stephanus tries to explain what Hippocrates had in mind with every aphorism and to offer a physiological interpretation of its content in terms of the humoral theory and with heavy leanings on Galen's *Commentary* (see Westerink's detailed listing of similar passages). Thus he explains the reason that made Hippocrates choose the stomach as the first subject of the substantive part of his work. The physiological explanations proceed by a rational and highly speculative argumentation with frequent reference to divergent opinions. This method enables Stephanus to explain everything to his own satisfaction. For instance, in connection with aphorism 2. 20, Stephanus tells his audience that Hippocrates is here viewing the conditions of the stomach with regard to age. He then suggests a number of hypothetical youthful conditions and deduces confidently what each will become in old age (pp. 176–83). The way of thinking in the classroom is not very distant from the kind of reasoning that guided the doctor at the bedside

The commentary represents lecture notes on a work introducing students to Hippocratic medicine It offers excellent summaries of Hippocratic principles as conceived in late Antiquity (see the commentary on the first aphorism and, pp. 96–99, the outline of the theory of nutrition) It also throws light on many details of Hippocratic medicine as it was taught and practiced at the time. Thus, p. 106, 27–30, confirms that the terms natural (*kata phusin*), non-natural (*ou phusei*), and contra-natural (*para phusin*) already were given the meaning that made them prominent in Arabic and medieval medicine.

Stephanus himself was not only a philosopher but also a medical practitioner, as evinces from passages such as "Often I treat a person for fever due to excess matter and I put him on a strict fast" (p 169), or "For instance, when I visit a patient and find he is taking barley water or fine bread" (p. 173). He engages in fictitious dialogues with Hippocrates. "My dear Hippocrates, (p. 40, 22: *ō Hippokrates*), how can you maintain that human life is short?" (p 41) He often speaks to the students directly "Perhaps you will ask 'How can I diagnose such a humor?' There are three criteria by means of which we determine the humor that needs purging. the character of the disease, the symptoms that attend it, and correlative factors" (p. 53) The commentary shows little originality of ideas, but it imparts clinical instruction without the presence of patients

Westerink's translation has skillfully preserved the tone with which Stephanus enlivened his otherwise rather dry, if not to say dull, lectures Yet they constitute one of the best sources for the study of late Hippocratic medicine. We owe Westerink thanks for having made them available to the Greek scholar and the English reader.

Reviewed by OWSEI TEMKIN, Institute of the History of Medicine, The Johns Hopkins University, Baltimore, Maryland.

TIMOTHY S MILLER. ***The Birth of the Hospital in the Byzantine Empire.*** Baltimore and London The Johns Hopkins University Press, 1985 (Henry E Sigerist Supplements to the *Bulletin of the History of Medicine,* new series, no. 10) xv + 228 pp $19.95.

As participants at the Dumbarton Oaks Symposium on Byzantine Medicine emphasized in 1983, there is a great deal of scholarly work to be done in this area. Timothy Miller, who presented a synopsis of his research on the Byzantine hospital system at the Dumbarton Oaks conference, now has completed and offers us a book on the subject In it he examines all aspects of the Byzantine hospital or *xenon,* searching for its origins, tracing its development, detailing its actual operation, and assessing its influence. This is a pioneering effort; whether or not one agrees with Miller's every point, this thoroughly researched volume is absolutely basic to the subject and will serve as the starting point for other investigations for years to come.

The subject matter of the book can be roughly divided in two. the history of the Byzantine hospital, and its workings This reviewer was particularly interested in the latter topic as treated in chapters two, eight and nine. Here, to paint his picture, Miller draws on a wide range of sources including the *typika* (or "charters") of the various hospitals (especially that of the twelfth-century Pantokrator Xenon in Constantinople), imperial decrees, archaeological and iconographic evidence, and the usual literary and hagiographical texts. With these aids he attempts to reconstruct the layout and appearance of the hospital complexes, he determines that, although there were no fees, not only the poor were served by the hospitals (in contrast with the West), he details the complex organization of the staff, and he treats the system whereby the hospitals were governed and supported. In Miller's view, all Byzantine hospitals were places of medical training as well as practice. In this connection he would have the autopsies documented by myself and Alexander Kazhdan (*Bull. Hist. Med.*, 1984, *58*: 554–57) conducted in hospitals. Miller goes so far as to entertain the notion that the *xenon* had the same general impact on Byzantine medicine as Western hospitals only achieved in the nineteenth century. There is, it seems, an attempt to raise and answer every possible question: for example the salaries (they were low) and the dress of physicians and hospital personnel are discussed, even the meals served to the patients are considered (nourishing and vegetarian).

The early chapters of the book are spent identifying the first hospitals and the causes which created and sustained them. Having stated his definition of a hospital, Miller argues against Meyer-Steineg that there were no genuine hospitals in the classical world. He finds what he is looking for in certain Christian institutions of charity which emerged in the fourth century A.D., e.g., the *Ptochotropheion* of St. Basil at Caesarea. In his view the combination of factors which produced the Byzantine hospital includes population growth, migration to the cities, the inability of the institutions of the classical polis to cope with the problems created by this influx, the response of the Christian community, and even, perhaps, the competition of the various Christian sects for the allegiance of the faithful. The interaction of religious and secular authorities is explored; the increasing influence of secular physicians in the therapeutic running of the hospital is traced. In the marriage of sacred and profane the activities of the Emperor Justinian emerge as crucial.

As Miller's quest brings him all the way back to the fourth century A.D., it turns out that the title of his book is to be taken absolutely: the Byzantines actually invented the true hospital in the Western tradition and perhaps in the world. This thesis will likely be severely tested by those who believe that Islamic hospitals were the model for their Byzantine counterparts, and especially by those who follow the traditional view that true hospitals in the West only emerged in modern times.

Whether Miller's contention that Byzantine *nosokomeia* of the fourth century were true hospitals wins assent or not, he certainly is correct in seeing in their later versions many analogies with modern hospitals. There can be no question that institutions such as that attached to the Pantokrator monastery seriously aimed at curing patients and not just tending them in squalor as in the West. Those who look into Byzantine health care with Professor Miller as their guide will gain a much more favorable impression of the subject than now prevails. En route they will learn in this readable book a great deal about other aspects of Byzantine society and much about classical and medieval medicine in general.

Reviewed by LAWRENCE J. BLIQUEZ, Department of Classics, University of Washington, Seattle, Washington.

JOHN SCARBOROUGH (ed.) ***Symposium on Byzantine Medicine.*** Washington, D.C.: Dumbarton Oaks, 1985 (Dumbarton Oaks Papers, no. 38). xvi + 282 pp. Ill. $40.00 (Order from Dumbarton Oaks Publishing Service, P.O. Box 4866 Hampden Station, Baltimore, Maryland 21211.)

"Among medical historians, the commonly held opinion of Byzantine medicine is one of stagnation, plagiarism of the great medical figures of classical antiquity, and a somber boredom that seemingly awaited the Italian Renaissance" (p. ix). Thus begins John Scarborough's introduction to this volume of papers that were presented at a symposium on Byzantine medicine held in 1983 at Dumbarton Oaks, the North American Mecca for Byzantinists. The symposium was organized, and its papers published, to help dispel the fallacious notion of Byzantine medicine as described in the opening sentence.

The theme of the volume is very broad: simply Byzantine medicine. The contributors are of varied backgrounds and interests: some are well-known Byzantine medical historians, others are Byzantinists who are not medical historians; some are medical historians who are not Byzantinists. A few appear to be neither medical historians nor Byzantinists. Hence the papers vary somewhat in quality and are extremely diverse in subject matter. They range from faith healing to surgical instruments, from insanity to philosophy, from Hippocratic to hippiatric medicine.

If the unifying theme were more circumscribed, the volume would have a more cogent arrangement than is possible with such a diverse collection. Yet there is a degree of both chronological and thematic sequence in the arrangement of papers. The twenty-one papers may be divided into two main sections: 1) Social and biographical history of Byzantine medicine, and 2) Byzantine medical theory, practice, and texts.

The first eight papers are in the first category. Vivian Nutton and Barry Baldwin provide two moderately overlapping surveys of the social history of Greco-Roman medicine. Nutton ("From Galen to Alexander: Aspects of Medicine and Medical Practice in Late Antiquity") limits his discussion to the period from the second to the sixth century A.D., whereas Baldwin ("Beyond the House Call: Doctors in Early Byzantine History and Politics") suggests that we "may begin Byzantinely with Homer" (p. 15). John Duffy's contribution ("Byzantine Medicine in the Sixth and Seventh Centuries: Aspects of Teaching and Practice") is the first paper in the volume that is indisputably Byzantine. The remaining papers in the first section range from a consideration of the identity of Theophanes Nonnus (Joseph Sonderkamp) and the portrayal of physicians in non-medical literature of the tenth through the twelfth centuries (Alexander Kazhdan) to the relationship of medicine and Christianity in Byzantine culture (Gary Vikan and Susan Ashbrook Harvey). Timothy Miller's discussion of Byzantine hospitals, which appears in the middle of this section, is but a preview of his perspicacious study recently published by the Johns Hopkins University Press.

The second section of the volume includes two papers on Byzantine pharmacology (John Riddle and John Scarborough), another on materia medica (Jerry Stannard), one on philosophy and medicine (Robert Todd), another on veterinary medicine (Anne-Marie Doyen-Higuet), and one on a new edition of John Actuarius (Armin Hohlweg). Two papers discuss ophthalmology (Robert Renehan and Emilie Savage-Smith), one deals with insanity (Michael Dols), another with rabies (Jean Théodoridès), and one with surgical instruments and practice (Lawrence Bliquez).

The last two papers (Elinor Lieber, "Asaf's *Book of Medicines* A Hebrew Encyclopedia of Greek and Jewish Medicine, Possibly Compiled in Byzantium on an Indian Model," and Gerhard Baader, "Early Medieval Latin Adaptations of Byzantine Medicine in Western Europe") are as peripheral to the study of Byzantine medicine as are the first two papers in the collection.

Scarborough, in his introduction, gives two goals for this volume One is "to establish the consideration of Byzantine medicine and allied sciences on sure foundations" (p. xvi) The second is to "engender interest in a neglected area of the History of Medicine" (p xvi) Such a diverse collection can hardly accomplish the former, although it does contribute significantly to it It is hoped that it will do much to effect the latter, for the history of Byzantine medicine remains nearly a virgin but exceedingly fecund field for scholarly investigation Scarborough is to be commended for organizing the symposium and for his careful editing of the volume.

Reviewed by **DARREL W. AMUNDSEN**, Department of Foreign Languages and Literatures, Western Washington University, Bellingham, Washington.

KONRAD GOEHL (ed) ***Guido d'Arezzo der Jüngere und sein "Liber mitis."*** Part I (introduction and text), Part II (indices) Pattensen, West Germany Horst Wellm Verlag, 1984, 2 vols (Wurzburger medizinhistorische Forschungen, no 32) 1,059 pp DM74,00 (paperbound).

Guido d'Arezzo's *Gentle Book* is a treatise "on the rules and order of administering medication" (p. 231) with an emphasis on purges The author (not to be confused with the more famous Guido of musical notation who preceded him by a half century) was a pupil of Roger Frugardi in Parma and one of the editors of the latter's lectures which grew into northern Italy's seminal textbook on surgery, the *Rolandina* Guido typifies several aspects of the transition between early and high scholasticism in medicine during the closing decades of the twelfth century His professed deference to theory as the foundation of practice harks back to the teachings of Salerno which reached their peak a generation earlier, yet his impatience with speculation reflects the pragmatism and empiricism which were becoming Lombard hallmarks. Though still indebted to the corpus bequeathed by Constantine the African and his Salernitan successors, he is among the first beneficiaries of the translations produced in Toledo, particularly of Aristotelian writings and Avicenna's *Canon of Medicine* A self-styled "servant of the profession of logic" rather than a physician, Guido also voices the resistance of the liberal arts masters to the teaching of *physica* by the emerging medical faculties

In his references to the new teacher-practitioners, Guido was anything but gentle. Scoffing at their desire to philosophize, condemning their attempts to attract students, and insinuating that they served only the rich, he accused them of obfuscating the art and demanded that they be "thrown out of town" (p. 276) He suggested an even worse fate for the physicians who, because they knew Aristotle's *Prior* and *Posterior Analytics,* disdained experience and acted as if medicine had been revealed to them from heaven "they ought to be stoned like rabid dogs, so that they could not contaminate the orthodox" (p 276) While neither the tone nor the thrust of Guido's excoriation is unique, his critique focuses on one notable concern of scholastic medicine, namely the quantification of medicinal qualities Skeptical towards Al-kindi's attempts to establish a mathematical science of degrees, he argues that the knowledge of medicinal effectiveness is "conjectural and imperfect" and hence the practitioner can only proceed from case to case while estimating his adjustments and staying close to a safe mean

The *Liber mitis* seems to have made little impact, for not more than half of the treatise is preserved in a single manuscript—although another incomplete copy may be extant in Vatican Palatine Latin codex 1242, not cited by the editor Goehl presents a careful transcription, but two of his editorial decisions are open to question. His avowed "normalization" of the orthography becomes anachronistic when he insists on correcting such medievalisms as *medicine* to *medicinae.* A more practical drawback is that his apparatus criticus is buried after the text. The German translation is generally lucid, with an occasional liberty or imprecision In his introduction to the author, text, content and background of the *Liber mitis,* Goehl offers perceptive insights and ample references, but one wishes that he had revised these choppy chapters of his dissertation into a more readable monograph. Of the two indexes which fill the second volume, one is a valuable catalogue of materia medica; the other, however, lists every single word in the text (including *a, cum, de, et* and so on) and cites the phrase of each occurrence for most words an exercise in pedantry which will appear extravagant to lexicographers and wasteful to historians of medicine.

Reviewed by LUKE DEMAITRE, Department of History, Pace University, Pleasantville, New York

ORTRUN RIHA (ed.) ***Meister Alexanders Monatsregeln: Untersuchungen zu einem spätmittelalterlichen Regimen duodecim mensium mit kritischer Textausgabe.*** Pattensen, West Germany: Horst Wellm Verlag, 1985 (Würzburger medizinhistorische Forschungen, no. 30). 298 pp DM44,00 (paperbound).

Riha's doctoral dissertation investigates *Meister Alexanders Monatsregeln* as one of at least ten known versions of the *regimina duodecim mensium* written in High and Low German between the end of the twelfth and early sixteenth centuries. These versions are discussed very informatively in the introductory remarks (pp 7–25) with regard to manuscript tradition and distribution, contents and form, as well as their relationship to Salernitan and pre-Salernitan sources, the *Secreta secretorum* and various other *Regimina sanitatis*

Riha proceeds to review critically recent scholarship pertaining to *Meister Alexanders Monatsregeln* She shows that this work constitutes a part of the extensive compendium *Melleus liquor physicae artis* written by Alexander Hispanus around 1200, and refutes the possibility that Alexander Trallianus (died 605) may have compiled these *Monatsregeln* as had been suggested by Gerhard Eis (pp. 32–35) Her systematic search for manuscripts enables Riha to bring to light eight Latin and fifteen German manuscripts between the fourteenth and sixteenth centuries (pp. 37–73), several of which have been hitherto unknown, and to demonstrate that the distribution of *Meister Alexanders Monatsregeln* was not limited strictly to Bavaria as was previously thought (p. 27; cf. map p 62). Riha groups the German manuscripts convincingly into five versions, version *a* representing a literal, the remaining four (*b–e*) constituting independent translations from the Latin work.

The bulk of the dissertation consists of an edition of all Latin (pp 79–130) and

German (pp. 131–249) texts Although Riha clearly attempts to present a reliable edition (cf. her criticism of previous editions of the Latin texts by Karl Sudhoff and Gundolf Keil, pp. 74–77, and of the German ones by Gerhard Eis, pp. 131–32), the editorial principles upon which it is based leave much to be desired Her work is characterized by a number of inconsistencies Thus, for example, the expanded abbreviations are underlined in one text, but not in the other, the variant readings, which are placed at the foot of the page of some texts, occur at the end of the chapter for others; the line numbers, which in the Latin edition refer conventionally to the edited text, relate, inexplicably in the case of the German texts, to the lines in the manuscript itself, and so on. Unacceptable, to say the least, is the fact that Riha does not follow a base manuscript for version *d,* the lengthiest and most important version of *Meister Alexanders Monatsregeln* (nine manuscripts), but instead attempts to reconstruct an archetypal text in Karl Lachmann's normalized classical Middle High German, an artificial language valid mainly for poetic works between 1190 and 1250

But despite these few shortcomings, Riha's accomplishment deserves to be highly praised, for not only does her dissertation constitute the first comprehensive study of *Meister Alexanders Monatsregeln,* but her work will also prove to be of invaluable help for urgently needed comparable investigations of the remaining versions of Middle High German *Monatsregeln*

Reviewed by FRANCIS B. BRÉVART, Department of Germanic Languages and Literatures, University of Pennsylvania, Philadelphia, Pennsylvania.

JOHN W SHIRLEY and F DAVID HOENIGER (eds) ***Science and Arts in the Renaissance.*** Washington, D.C. Folger Books, London and Toronto: Associated University Presses, 1985 (Folger Institute Symposia series) 220 pp Ill. $32.50

This volume of ten essays developed out of a symposium with the same title sponsored by the Folger Institute of Renaissance and Eighteenth-Century Studies in 1978. It consists of a selection from the papers delivered at the symposium, revised to incorporate some of the discussion that took place, and two additional invited papers The goal of the editors, according to the introduction, was to produce a unified work that would appeal to the general reader Notwithstanding the merits of individual contributions, the result of this endeavor to combine the proceedings of a scholarly meeting and an anthology for the non-specialist is a somewhat awkward hybrid.

The subject matter of the essays ranges widely A general introduction by Alistair Crombie sets the theme of the volume: the shared culture and interaction of arts and sciences in the Renaissance Medicine, Paracelsian ideas (not necessarily medical), music, navigation, and the natural history of plants and animals are allocated one essay each. The contribution of Renaissance artists to the development of science is, in one way or another, the subject of the remaining four. The volume is well produced, although some of the illustrations are far too dark (especially Dürer's *Melancholia,* p 161), the absence of an index is regrettable

I shall make no attempt to comment on the essays on music and navigation for readers of the *Bulletin* For medical historians, the essay of greatest interest is likely to be Jerome Bylebyl's substantial account of the transformation of the medieval academic medical tradition in the milieu of the Renaissance Italian universities Although one might wish for somewhat fuller treatment of those elements in late medieval academic medicine that were not derived from the influence of Aristotelian logic and natural philosophy, the author's analysis of changing attitudes among physicians regarding the proper content of medical learning is notably perceptive and informative.

In addition, P M. Rattansi summarizes some Paracelsian themes and the response of the Romantics to them F David Hoeniger, "How Plants and Animals Were Studied in the Mid-Sixteenth Century," provides a handy brief overview of the contributions of Conrad Gesner and some other humanistically educated naturalist writers or illustrators Furthermore, three of the four essays on art allude to, but are not exclusively concerned with, anatomical or botanical illustration. James Ackerman, "The Involvement of Artists in Renaissance Science," Philip C Ritterbush, "The Organism as Symbol: An Innovation in Art," and Samuel Y Edgerton, "The Renaissance Development of Scientific Illustration." In one way or another, all these authors stress the obvious importance of Renaissance artistic values and techniques for the development of naturalistic illustration in anatomy and botany Edgerton in addition claims broad significance in the development of science for Renaissance techniques of accurately depicting machines. By contrast, the remaining essay on the relations of art and science, Michael Mahoney's "Diagrams and Dynamics," sharply denies the relevance of naturalistic visual representation to the evolution of seventeenth-century mechanics, and hence to areas of knowledge central to the concept of the Scientific Revolution.

The topic of the interaction of science and the arts in the Renaissance is so large that no one volume could possible provide a wholly satisfactory coverage or interpretation. Although the mix of topics and approaches in this volume does not seem, to this reader at any rate, to come together as a fully unified work, we must be grateful to the editors for assembling some useful papers on an important general theme

Reviewed by NANCY G. SIRAISI, Department of History, Hunter College and the Graduate School, City University of New York, New York.

ANN G CARMICHAEL *Plague and the Poor in Renaissance Florence.* Cambridge and New York. Cambridge University Press, 1986 (Cambridge History of Medicine) xv + 180 pp $29 95.

The rich harvest from the Florentine archives continues. Hard on the heels of Katharine Park's *Doctors and Medicine in Early Renaissance Florence* (Princeton, 1985), comes Ann Carmichael's study of the epidemic diseases with which the profession had to cope. This book, according to its modest preface, is but a limited analysis of records from Florence in the period 1300 to 1500. They are, all the same, records of a remarkable character, which find no parallel, for instance, in England Civic registers of deaths in Florence survive from 1385 onwards, and, from 1424, diagnoses were included during epidemics in an attempt to monitor the spread of plague Ann Carmichael has made painstaking use of these records (no less than 60,000 cases from the registers form the basis of her study) and, despite the short compass of the book, she has provided a detailed and fertile analysis. Her examination of disease patterns breaks new ground in several ways, not least in its attention to the variety of diseases which, along with plague, were responsible for the epidemics of the period

One of the most interesting questions addressed by the book concerns the development of plague control The role of northern Italian states in pioneering anti-plague measures—including quarantines, lazarettos, and health boards—has been the focus of much recent attention, especially in the work of Carlo Cipolla. Yet no attempt has been made to explain why it took a whole century after the Black Death for such measures to be widely adopted Ann Carmichael's solution points to differences, which she ably demonstrates, between fourteenth- and fifteenth-century epidemics. Plague epidemics became less virulent in the fifteenth century, and the countryside was usually spared. As wealthy Florentines increasingly survived by flight from the city, plague came to be seen as a contagious disease of the poor It was this understanding which opened the way for action against the disease.

This is a persuasive argument, which adds to our understanding of the relation between rich and poor in early modern Europe Plague control, the book demonstrates, was also an aspect of social control, a means of dealing with the threat to society from the poor and their diseases Plague legislation, then, served the interests of the ruling class; for the poor it only made matters worse. Isolated in an overcrowded pest house, a person was more likely to die (pp. 125–27), while the controls in general "could not have been either rational or successful in dealing with the disease caused by Y. pestis" (p. 3) Here we are treading more controversial ground It might, for instance, be argued that evacuating the inhabitants of plague-infected houses to hospitals and quarantine centres was a rational procedure based on the perception that plague was a disease not only of man, but of his environment. The fears and self-interest of the governing class may indeed have promoted the development of plague control. The beneficiary, all the same, may have been society as a whole. This is a stimulating book, whose value is in inverse proportion to its admirable brevity

Reviewed by RICHARD PALMER, Wellcome Institute for the History of Medicine, London, England, U K.

JOHN TATE LANNING *The Royal Protomedicato: The Regulation of the Medical Profession in the Spanish Empire.* Edited by JOHN JAY TEPASKE Durham, North Carolina. Duke University Press, 1985. 485 pp $37 50

There is much to admire about the late John Tate Lanning's *The Royal Protomedicato* It represents years of research in archives throughout Latin America It is witness of a championship editorial effort by John TePaske, who has made the two-thousand-page manuscript accessible to students of Latin America and history of medicine And its erudite style of informed precision offers an example of pre-social science historical prose; a style that puts flesh on the bare bones of notarial records, royal correspondence, and other bureaucratic detritus.

As defined by Lanning, the Protomedicato was "a board usually composed of three doctors to examine and license physicians, surgeons, and other practitioners, and to perform other administrative, judicial and scientific duties related to medical practice" (p. 391). Like most Spanish institutions in the New World this one evolved gradually. In the first century of colonization these duties were the charge of medical men appointed by municipal councils or viceroys. After 1646 the Crown reserved unto itself the power to appoint the Protomedicatos. Over the entirety of the colonial period problems of jurisdiction—territorial and administrative—perennially occurred The institution, in Lanning's view, came to reflect the internecine feuding among organs of government that beset Spain's colonial empire from the outset Lanning's sources highlight the political maneuvering whereby town government sought to escape royal authority, viceroys attempted to checkmate local authorities, and the crown vied to maintain leverage over colonists and viceroys, as well as keep the "Indies" inviolate from all European interlopers including professional medical men

Besides reflecting political life in the colony the history of the Protomedicato illuminates the origins and process of professionalization of medical practice. As Lanning's evidence indicates, time and again the "health care issue" at stake in the colonies was insuring that medical practitioners were white, Catholic, and purportedly literate Practitioners who acquired their experience through on-the-job training, who could not read and write Latin, and who lacked "blood purity" were the sorts that Protomedicatos regularly found unqualified to practice the healing arts.

The Royal Protomedicato is replete with anecdotes about medicine and the bureaucracy. There is the story of an eighteen-year-old barber-surgeon in Mexico City who refused to bribe a representative of the Protomedicato. Another describes a mulatto surgeon's triumph, after a lifetime of practicing medicine, of being allowed finally to enter the university in Havana, and there earning three academic degrees in fifteen days. These vignettes read like news items from the inside pages of a metropolitan daily. They provide a window on the day-to-day activities of the doctor as a public person rather than as a man of science. As with most anecdotes they tend toward the colorful, if not intrinsically, then through the efforts of the author

If the strength of the book is Lanning's thorough research and firm footing in the history of Spanish America, the major constraint is a modest grounding in medical history. As it is, Lanning presents a wealth of information about medical practice, epidemics, concepts of disease, and medical oddities (e.g., a set of quintuplets born in 1776). The reader cannot help but wonder though, what a researcher more attuned to the issues of medical historiography would have seen in the archival materials so deeply mined by Lanning

In the introduction there is a disclaimer that the book should not be viewed as a history of medicine. What Lanning appears to mean by this is that the topic of medicine as revealed in the archival records of Spanish America dealt not at all with the history of scientific medicine Indeed, Lanning seems regularly to be apologizing for the benighted pragmatism of folk practitioners, or ridiculing the licensed physicians for their learned incompetence This approach accommodates his focus on the organization of the profession, but it is a limitation in understanding health and disease in pre-modern medical terms The irony is that no other single volume offers as much information and insight into medical matters in the Spanish colonies. Lanning, however inadvertently, does present a kind of history that allows the reader to see the many ways in which medicine as well as public health are socio-cultural phenomena. Too often this fact is lost in the presentation of history of medicine as scientific enterprise.

Reviewed by J D. GOODYEAR, Office of Academic Advising, The Johns Hopkins University, Baltimore, Maryland.

MARC JEANNEROD ***The Brain Machine: The Development of Neurophysiological Thought*** Translated by David Urion Cambridge, Mass, and London. Harvard University Press, 1985. vi + 171 pp Ill. $16 95

In providing a very clear and readable version, the translator apparently felt uneasy with the author's subtitle, ***Physiologie de la Volonté*** "will" sounding too antiquated, "volition" too technical. Hence his noncommittal, if somewhat misleading "neurophysiological thought." The book, however, is not about neurophysiology as a whole, but deals with "the subject and his brain which question the environment, inhabit it little by little, and finally master it"—to quote the author's own last lines. Reflection without intention he hardly considers. Jeannerod, a professor of physiology at Lyon, France, shows a remarkable grasp of the pertinent history spanning three hundred years, this accounts for approximately half of the text. He thus confirms the thesis, dear to historians, that no subject can be fully appreciated without an understanding of its past. Another axiom confirmed by his account is the inescapable bond between the technology of a period and its ideas, not to speak of its experimental tools.

The book naturally starts with Descartes. Subject to Christian ideology, Descartes was carefully skirting the issue of how an immaterial soul might inhabit or contact a hydraulic machine that channels and converts sensation into action This assumption, however, gave birth to the seminal seventeenth-century concept of reflexes, also espoused by Thomas Willis Willis, in addition, drew attention, not heeded for a long time, to the role of the cerebral convolutions as a repository for memories. Another century later, dualism slowly began to be undermined by the shockingly materialistic writings of D'Holbach and La Mettrie. But dualism or parallelism did not lose its dominance over twentieth-century experimentalists such as Sherrington and Eccles. It was in Czarist Russia where the reflex theory was applied to mental processes by such dissidents as Sechenov and Pavlov, side by side with the German school of experimental psychology and American behaviorism Meanwhile English empiricism—John Locke and his influence on the French sensualists—had denied the primary role of ideas, in favor of the environment acting on the sense organs *Volonté* and *der Wille*, as it appears in Maine de Biran and Arthur Schopenhauer, the English language best expresses as "drive". "I act, therefore I am," as Jeannerod paraphrases.

When Gall's speculative endeavors to parcel the cerebral cortex were eventually modified, so as to confirm cortical localization of motor and sensory function, another schism was in the making Dreams of a neat cortical mosaic were bound to be stigmatized as "brain mythology" in a holistic backlash. Lashley, Goldstein and the *Gestalt* school had convincing arguments to the contrary Meanwhile the neuron theory (not mentioned by the author) and the discovery of a spontaneous cerebral electrical activity were undermining the passive role imposed on the brain by the reflex theorists Paradoxically it was the exploration of dreams by the electroencephalograph that afforded a major contribution to viewing the brain as an organ capable of partial self-arousal In the later chapters we are guided through the complex modern concepts of "spontaneity, representation, plan, program," to "action, the force of self-organization " The author's lucid style and arrangement of the subject matter provide an unrivalled thread through this maze of argument, physiological fact, and counter-argument

Reviewed by FRANCIS SCHILLER, Department of the History and Philosophy of Health Sciences, University of California, San Francisco, California

EVELYN WARD GAY. ***The Medical Profession in Georgia, 1733–1983.*** Atlanta. Auxiliary to the Medical Association of Georgia, 1983. xvi + 447 pp. Ill $25.00. (Order from Auxiliary to the Medical Association of Georgia, 938 Peachtree Street, N.E., Atlanta, Georgia 30309.)

Parts of this volume are much more than a history of the medical profession in Georgia and other parts are much less. No portion of the book portrays more fully the larger environment in which physicians functioned than that devoted to the Colonial Era. In a society besieged by diseases and epidemics almost from the time the first physician arrived in 1732 (dying a few weeks later), bewildered practitioners struggled against contagions with meager resources and often lesser hopes while contributing to the adoption of such rudimentary public health measures as quarantine and relocation. In a pursuit in which "pretenders" were hardly distinguishable from conventional practitioners and in which both struggled against apothecaries, it is not surprising, as the author indicates, that medical practitioners hardly achieved the status of a profession until the 1760s.

The narrative moves swiftly over the profession's problems and struggles from the Revolutionary Era to Secession. The author discusses the growth of medical sects and medical schools, repeal of licensing laws, and public recourse to self-medication in an age when political democracy encouraged medical democracy. She discusses the movement for the organization of physicians and the pioneer work of some prominent Georgia physicians including Crawford W. Long and his work with anesthesia

In a fragmentary coverage of the medical profession during Reconstruction and three decades after, the author cites the alarming health problems of freedmen who fell into the squalor and diseases of urban environments. She discusses the faltering steps the legislature took to deal with matters of public health, allowing a public health department that it had created two years earlier to expire from lack of funds in 1877 Yet her account of a prominent Georgia physician who publicized his idea that the smallpox epidemic of 1876 originated in the spores of "cryptogamic plants" indicates that etiological uncertainties also obstructed the struggle against disease.

The medical world of twentieth-century Georgia stands in sharp contrast to the author's portrayal of the nineteenth. She emphasizes the great strides the state has made in public health reform, the development of medical centers and medical schools, and the establishment of Hill-Burton hospitals. She stresses the growing role women have played in medicine, Georgia's place in the national health structure, and the national recognition that some of its doctors have achieved

This book will serve the Georgia profession well in providing interesting highlights of its history and in citing the forgotten roles of many of its leaders. But health professionals well read in medical history will find few new insights. Excessive quotations and frequent lists of obscure physicians mar the narrative. Excursion into areas of only marginal relevance and general omission of helpful background history of Georgia since Reconstruction reduce its value Organizational problems of the profession and the social and economic issues it confronted in the early twentieth century receive scant treatment.

Reviewed by JAMES G. BURROW, Department of History, Abilene Christian University, Abilene, Texas.

JOHN D POST *Food Shortage, Climatic Variability, and Epidemic Disease in Preindustrial Europe: The Mortality Peak in the Early 1740s*. Ithaca, New York, and London Cornell University Press, 1985. 303 pp. $29.95

The content of historical demography does not always bear at all directly on medical history. Retrospective studies of family mobility, population composition, or occupational trends, for instance, usually hold little interest for most scholars in the latter and related fields. At the same time, several equally large areas of historical demographic inquiry—fertility, epidemiology, nutrition, mortality—are, of course, of crucial relevance A steadily increasing number of challenging and valuable works in these areas has appeared during the last decade, works that have done much to illuminate obscure areas of the medical past The present volume should be added to that list

Post's work demonstrates the mixed values that medical historians tend to perceive even in highly pertinent kinds of historical demography. In common with archeology, historical demography involves drawing inferences about the past from accumulations of frequently scattered and incomplete bits of evidence Practitioners of the specialty typically devote much space in their publications to evaluating and reinterpreting the inferences of their predecessors about this evidence and to explaining and defending the methodological innovations that they themselves have worked out for their own interpretations These discussions are often complicated and of relatively little appeal to non-specialists, especially when buttressed by extensive tabular or graphic presentations and mathematical demonstrations. At the same time, the substantive materials gathered by the historical demographer are usually of much intrinsic importance Moreover, the quantitative findings of such scholars really demand the attention of non-specialists because of the high degree of factual objectivity and authenticity that they bring to history in place of subjective hunches and surmises.

Post, an economic historian, attempts here to unravel a complex of factors—weather, harvests, nutrition, welfare and relief programs—which bore in various degrees upon the calamitous excess of disease and mortality experienced in Western Europe during the period between 1740 and 1742, a period of severe climatic extremes and famine. He calls the excess a "mortality peak." This was one of a series of identifiable pre-industrial crises in which the recorded number of deaths exceeded the ten-year average by 30 percent or more, but it had particular demographic significance as the last such peak in Western Europe that caused a reduction in population growth Post's study concludes that this particular peak probably "did not originate primarily in the biological effects of undernutrition" (p 273), but owed much of its severity to social dislocations set in motion by the harsh climatic episodes

The author's detective work leading up to these conclusions included the examination of agricultural, economic, and meteorological data as well as of existing bills of mortality, contemporary narratives and medical diagnoses, and institutional reports It also required him to assimilate late twentieth-century medical literature concerning the pathological nature and effects of malnutrition, accidental hypothermia, and such epidemic diseases as typhus, dysentery, and respiratory infections. He has in general succeeded remarkably well in synthesizing these varied sources, though the resulting prose is not always easy to follow

This work is written with the interests of other historical demographers clearly uppermost in the author's mind; the early chapters are particularly weighted with methodological discussions directed toward such professionals. The subsequent topical chapters, however, provide a historical dissection of the anatomy of famine, country by country—social, economic, climatic, and medical—that is much broader in appeal. This is due at least in part to the vivid, if excessively encyclopedic, illustrative detail that breaks up the analytical sections, to contemporary testimony that reveals how mid-eighteenth-century Europeans lived, what the physical and economic circumstances of their lives were, and how they and their governments or churches responded to catastrophic fluctuations in these circumstances that affected their livelihood and health.

Post's volume does not deal with eighteenth-century medical institutions except as vehicles of relief and welfare during times of economic emergency and social dislocation. It does not include much about physicians except in their capacities as recorders and describers of the vital events of the day. It says, however, a great deal about the social, economic, and physical circumstances of the people who, as patients, filled the hospitals, strained the welfare provisions, and overwhelmed the physicians during this prolonged period of catastrophic natural events and epidemics. Above all, it provides an important examination of the larger dimensions of disease in human populations and of the complexities of its modes of spreading.

While no substantive evaluation of the author's methods and conclusions can be attempted here, some stylistic elements in the book deserve comment. Perhaps unavoidably, there is considerable repetition, brought about mainly by the form of organization and arrangement of material. At the same time, the author sometimes assumes more knowledge on the part of the non-specialist reader than is justified, and he does not always provide easily-found definitions of his key concepts. Occasional sentences and terms, moreover, are curiously obscure, not always fully developed, or not clearly related to adjacent material.

Nevertheless, exhaustively argued as it is from original sources, this work should be of great value to scholars of eighteenth-century European health and disease. To be sure, it may not be the very last word on the subject of even this one mortality crisis. Still, future historical demographers and medical historians alike will owe a large debt to Post's careful synthesis.

Reviewed by JAMES H. CASSEDY, History of Medicine Division, National Library of Medicine, Bethesda, Maryland.

W. F. BYNUM and ROY PORTER (eds.) ***William Hunter and the Eighteenth-Century Medical World.*** Cambridge and New York. Cambridge University Press, 1985. xi + 424 pp. $49.50.

This volume comprises revised versions of fourteen papers from a conference held in 1983 at the Wellcome Institute in London to commemorate the second centenary of William Hunter's death. It begins with two contrasting assessments of his personality and career, by Roy Porter (London) and Helen Brock (Glasgow). Seven essays follow, on various aspects of medical education, theory, and practice in his time, filling half the book though "somewhat remote from William Hunter's London" as one editor, Bynum, remarks (p. 109); then three pertinent papers placing Hunter among his contemporaries, a paper on the history of obstetric ideas by Angus McLaren (Victoria, B C), and a speculative art history appraisal of Hunter's renowned *Anatomy of the Human Gravid Uterus* by L J Jordanova (University of Essex) who tries to fit a work of the Enlightenment into a Romantic frame Two only of the authors are medically qualified

There is scant reference to Hunter's writings, except selectively, by W D. Ian Rolfe (Glasgow) in his new research into Hunter's natural history work and thought, by Adrian Wilson (Cambridge, England) on "The Varieties of Man-Midwifery" using contemporary case histories; and by Edward Shorter (Toronto) on "The Management of Normal Deliveries," an innovative study complementing the better-known history of "the eighteenth-century revolution in management of complications." Hunter's *Signs of Infanticide* seems not to be mentioned, it is not in the sporadic index, unworthy of the old standards of Cambridge University Press Written in his last year, the essay was six times reprinted, and translated into French and Italian in the ensuing half-century

Porter's survey of Hunter's career is surprisingly "sour" (cf p 25, n 98), though factual and appreciative. Hunter presents to him the "paradox" of an "upstart" social climber and acquisitive collector of "elite" acquaintance and "conspicuous" treasure, who was also an untiring and brilliant scientist and teacher, but quarrelsome and miserly. Each word of praise is deflated by a belittling epithet Porter writes that Hunter went to the "wrong" university, but Helen Brock in her more generous account reminds us that Francis Hutcheson, the moving spirit at Glasgow "awakened in [his pupils] a taste for all that was ornamental and useful in human life" (p. 36) Her pioneer research on Hunter's finances is a welcome addition to knowledge, showing his happiness in understanding and enjoying his collections, not merely "acquiring culture " In Scottish usage, as *Waverley* explains, the poorest of an established kinship was a gentleman, not an upstart, Hunter had no need to "climb," like every able ambitious man he rose by clasping each helping hand Did William Hunter "turn his back on nature"? Rolfe's chapter contradicts this assumption, or his "raw" brother John turn his on culture? William had educated John through ten years into suavity and cultivation Gelfand in his chapter makes a greater gaffe in leaving John without "any exceptional merit as a teacher" (p. 149), the next generation of surgeons, and great pathologists such as Jenner and the genial Baillie, were indebted to the "dear man's" inspiration.

The remaining chapters comprise 3) Joan Lane (Warwick University) on "The Role of Apprenticeship in Medical Education," a well documented study of English provincial as well as London experience, with evidence from diaries and letters supplementing official records 4) William Bynum on "Physicians, Hospitals and Career Structures" is an introduction to the survey he is preparing to evaluate "the visibility, income, prestige and social status" of medical men, chiefly in London, in relation to the hospitals and institutions which were superseding the old medical corporations. 5) Toby Gelfand (Ottawa) on "Hospital Teaching as Private Enterprise" shows the rise of London's medical schools in the old and new hospitals yet unsupported by them, and makes useful comparison of London and Paris methods 8) Othmar Keel (Paris and Montreal) on "The Politics of Health and the Institutionalisation of Clinical Practices in Europe" provides thorough discussion of clinical practice in French hospitals, and briefly in Italy and the Netherlands, between Boerhaave's time and the French Revolution He is admirably ready for controversy, but almost half of his fifty pages are occupied by footnotes where most of his criticism is displayed. I share Gabriel Rossetti's "horror of learned buttonholders who hamper their text with numerals for reference" instead of "saying at once what was to say" (*Dante and His Circle,* 1874). Keel's idiomatic French has not been well rendered by his translator: sentences such as "neurological theatres to illustrate the table of morbid essences" or "conceptual models in the constitution of the clinical problematique" are transliterations of Franglais, not plain English, but there is imprecision of usage too often in the volume. A near *struldbrugg* like myself dislikes finding "opportunity" an adjective or "structure" a verb 6) Christopher Lawrence on "Edinburgh Medical Men, 1726–76," and 9) François Duchesneau (Montreal and Paris) on "Barthez, Blumenbach and John Hunter—Vitalism in Physiology" are straightforward accounts of their subjects, bringing new evidence to support fairly familiar stories Lawrence emphasizes Edinburgh's precedence of London, and Duchesneau connects John Hunter's work with foreign parallels I have found 7) Johanna Geyer-Kordesch (Munster) on "German Medical Education" the most interesting of these general chapters, perhaps because "the Prussian context and its influence" are not familiar to English-speaking historians, and even more for its upgrading of G. E Stahl, a famous but neglected name. All the papers are interesting and fresh, but do not quite provide the coherent survey the book's title suggests

Reviewed by WILLIAM LEFANU, formerly Librarian of the Royal College of Surgeons of England.

DOROTHY A. STANSFIELD *Thomas Beddoes, M.D., 1760–1808: Chemist, Physician, Democrat.* Dordrecht, The Netherlands-Boston-Lancaster· D Reidel, 1984 xix + 306 pp Dfl. 140,00; $54.00.

The friendships and alliances which Thomas Beddoes made during his life have been sufficient to make him fairly well known to historians of various persuasions He was the disciple of John Brown, the friend of Coleridge, a soul-mate of the Lunar Society and the patron of Davy To be thought of in terms of association rather than contribution, however, has never usually been sufficient within the history of medicine to generate a biography Such has been Beddoes's fate and, until now, he has generally been encountered in the biographies of his acquaintances or in J E Stock's *Memoirs of the Life* of 1811. Dorothy Stansfield's life history of a man customarily relegated to the genre "minor figures" demonstrates that biography in this demimonde is well worthwhile. This generally sound and thorough account of Beddoes adds plenty of colour to the current picture of eighteenth-century medicine and more works of this sort would be welcome. Stansfield has gone back, beyond Beddoes the doctor, to the papers and correspondence of Beddoes the radical, the poet, the philosopher, the educationalist, and the somehow terrifyingly modern incarnation of the late Enlightenment

Beddoes was born in that eighteenth-century hot-house of progress and rationalism, Shropshire. After a spell at Oxford and London, he made the almost obligatory pilgrimage to Edinburgh He was attracted by Black's chemistry, but Stansfield can throw no light on why John Brown's medical theory, rather than William Cullen's, excited Beddoes The careers of the disciples of these two Scots demagogues would make a fascinating study. Radicalism and Brunonianism coincide too often for it to be a coincidence. From Edinburgh, Beddoes went to Oxford where he lectured in chemistry until his politics made him *persona non grata.* It was in these years that Beddoes made contact with the Lunar Society and Stansfield exploits a great deal of unpublished material to illuminate the parallel importance which the new chemistry and the French Revolution had to some English observers. Bristol, however, eventually became Beddoes's home and here he wrote numerous unsigned pieces for the *Monthly Review.* These, following their identification by B. C. Nangle, Stansfield uses to demonstrate that Beddoes's social criticism persisted after he shed his flamboyant radicalism; a prudent policy dictated by the demands of medical practice. Stansfield devotes space to Beddoes's poetry and his relations with Coleridge and deals at informative length with Beddoes's albatross, the Pneumatic Institute. Congenial and much liked (by his friends if not the Establishment), he died in Bristol in 1808, aged forty-eight. The last years Stansfield also recreates with similar thoroughness. Occasionally, her punctiliousness is not equal to her bid for comprehensiveness. There are a number of silly slips of attribution and dating: Monro *primus* is called Professor of Medicine instead of Anatomy (p. 22), the dates of Cullen's professorship and Black's famous dissertation are quite wrong (pp. 24, 26).

The most striking feature of this biography, however, is that it shows that writing about the Enlightenment can be like going back to the future. The temptation to identify the values of Enlightened medical men with our own and to take their prescriptions as adumbrations of our practice can clearly be overwhelming. How is it possible not to warm to a man who advocated medical inspection in schools, who "had an appreciation of the psychology of individuals and of its significance in education and medicine" (p. 210), who "was hoping to instil a rational attitude to nervous illness and to madness" (p. 207), who "rejected the authoritative imposing of programmes of learning" (p. 202), who was indignant at "the anxiety and misery caused to sick people by their being unable to free themselves from superstitions, beliefs and folklore" (p. 200). Indeed, a man who, in advocating that children should learn about nature through dissection, is so humanitarian as "to emphasise that the frog should first be killed by the quickest method, immersion in boiling water" (p. 203). Inadvertently, however, Stansfield reminds us that the Enlightenment and the eighteenth century were different things, for when Beddoes is the child of the first she understands his "sympathy" with the "disgust" of a patient who was treated by being made to lie in bed with a "cow's head thrust through the curtains" (p. 218). What she cannot explain or sympathize with is why Beddoes prescribed such a remedy in the first place.

Reviewed by CHRISTOPHER LAWRENCE, Wellcome Institute for the History of Medicine, London, England, U.K.

JUDITH SCHNEID LEWIS. ***In the Family Way: Childbearing in the British Aristocracy, 1760–1860.*** New Brunswick, New Jersey: Rutgers University Press, 1986. xi + 313 pp. $29.00.

It was Randolph Trumbach's provocatively titled *The Rise of the Egalitarian Family. Aristocratic Kinship and Domestic Relations* (1978) which turned aristocratic biography from antiquarianism into one of the most fascinating and forward-looking areas of social history. For Trumbach's claim was that, when it came to family relations, the pioneering role in the secular shift from hierarchical patriarchalism to relatively democratic gender relations within matrimony was played by none other than the English nobility during the eighteenth and nineteenth centuries. In developing his case, Trumbach demonstrated closening ties between parents and children, and, above all, between mothers and infants; and by looking at changing practices involving babies and children (e.g., the trend towards maternal breast-feeding), said much of deep interest to medical historians concerned with gynecology, infant diseases, and overall historical demography.

Not the least virtue of Judith Schneid Lewis's well-researched and attractively presented volume is that she has gone over similar materials as those Trumbach used (albeit in greater depth, ranging further forward, though narrowing the focus onto childbearing itself), and has in general corroborated the broad lines of his analysis Aristocratic ladies were indeed confidently to the fore in championing new attitudes towards, and new techniques of, pregnancy and its management, giving birth, arranging confinements, infant-feeding, and so forth Above all, they enthusiastically embraced the services of man-midwives (Lewis offers abundant evidence of the implicit trust placed in the skills of a Denman or a Knighton), and collaborated with their physicians in working out relatively "natural" and unstressed regimens for pregnancy and giving birth (the rituals of the women-only, darkened, overheated birthing-room waned early, though other ceremonies, including quite a lengthy period of post-partum "confinement," concluding in churching, tended to continue)

In passing, Lewis makes good use of physicians' records, in particular the manuscript papers of Sir Richard Croft. On the one hand she confirms that becoming a medical attendant to the nobility was an extremely greasy pole (young men like Croft might see no payments for a couple of years from new clients), albeit that the climb, when successful, proved extraordinarily lucrative in the end On the other, she shows how intimate relations between doctor and patient could become. Internal examinations evolved as a normal part of obstetric practice with little sign of embarrassment on either side (indeed, noble ladies kept up their public engagements right through to the last moments almost of pregnancy)

This is a book whose strength lies in its robust organization of original materials. Its wider conceptual framework (the notion of a shift in childbirth patterns from "patriarchal etiquette" to the "romantic") is open to question and perhaps explains little. It would have helped to be informed whether the trends established in this book were typical of the aristocracy as a whole, or essentially of the smart London inner core, whose papers are chiefly quoted. And present-mindedness occasionally intrudes. Thus we are told that "the opposition to birth control which so markedly typified the English aristocracy could not be overcome until private needs would supercede [*sic*] these public demands, or until public demands changed" (p. 219)—surely a case of putting the explanatory cart before the horse. But these are relatively minor quibbles, which do not detract from the achievement of this account of the emergence of new childbirth practices and their rationales.

Reviewed by **ROY PORTER**, Wellcome Institute for the History of Medicine, London, England, U.K.

J. K. ARONSON. ***An Account of the Foxglove and its Medical Uses, 1785–1985*** (includes a facsimile of Withering's treatise). Oxford and New York: Oxford University Press, 1985. 399 pp. $45.00.

Withering's pioneering investigation of the clinical effects of digitalis, published in 1785, is rightly remembered as the first scientifically based large-scale study of the efficacy of any drug in man. Aronson has prepared the book under review to celebrate the bicentennial of the appearance of *An Account of the Foxglove.* It was clearly a labor of love for which he was well prepared: he is a clinical pharmacologist at Oxford who has published his own observations of clinical effects of digitalis.

His remembrance is in two parts. The first is a facsimile of Withering's book with marginal notes (not footnotes) which identify the persons, drugs, and pharmaceutical and other medical terms mentioned in it. The marginalia—a triumph of the modern typesetter's skill and patience—will be most helpful to those who have never read the original before. They provide adequate explanations, on the whole, although one or two are rather pedantic (e.g., "Dressler's syndrome" turns out to be "post-myocardial infarction pericarditis"), a few are not correct (e.g., "quotidian" means daily, not "every three days;" scrophula is tuberculosis of the cervical lymph glands, not of the skin, and "chrystals of tartar" were sodium potassium tartrate, or Rochelle salt); and a few others are inadvertently misleading (e.g., although dandelion *may* have been called "piss-a-bed" in the vulgar tongue, it seems not to have been regarded as a diuretic in professional medicine). But these examples are only the unusual exceptions to a comprehensive scheme of annotations, which are extensively cross-referenced among themselves and also separately indexed.

The second part of Aronson's book consists of his own description of the history of the foxglove plant and of digitalis before and after 1785. It seems to have been written for the "general reader," not for the physician. The chapters on Withering's life, and on his discovery and its reception by his contemporaries, are valuable summaries of a complex maze of information. Indeed, Aronson has made interpretations which have eluded this reviewer in the past. Some of his other conclusions differ somewhat, but he documents them convincingly. It should be noted that we still lack a definitive biography of Withering; Aronson did not intend his chapter to be one, and the book on Withering by Peck and Wilkinson (1950) contains no references or other scholarly apparatus.

The final three short chapters attempt to bring the story of the clinical use of digitalis—in terms of what Aronson calls physicians' "attitudes" toward it—down to the present. Although the chapters on the twentieth century are probably adequate summaries of the record, that on the nineteenth century is not. Underlying this defect is Aronson's complete avoidance of the humoral and solidist concepts of pathophysiology and protopharmacology that underlay most everyday medical thinking until about a hundred years ago. The omission is important because such notions, especially those relating dropsy to both increased and decreased fiber tones, fostered the confusion which slowed the full acceptance of digitalis into medical practice until the early twentieth century—that is, bedside observations could not be made to fit the theories. Explanations of these ideas would have enhanced the usefulness of Aronson's work for the unprepared reader, either when reading Withering's own observations or those of his successors. In addition, by the 1870s much more was known about the appropriate conditions—as defined today—in which to administer digitalis than Aronson seems to believe. We must, then, still look forward to a complete unravelling of the evolution of medical thinking about the prototypical cardiotonic drug over the years between Withering and Wenckebach (1910). For a detailed overview of very recent knowledge about digitalis, one might also wish to consult the Withering commemorative symposium issued as Supplement A to the May 1985 issue of the *Journal of the American College of Cardiology,* volume 5. However, despite its one large omission and its nearly forgettable errors, Aronson's book will be interesting and instructive, especially to those who are not familiar with medical reasoning in the eighteenth century, and to those concerned with the introduction (or reintroduction) of digitalis in our own century

Reviewed by J. WORTH ESTES, Department of Pharmacology and Experimental Therapeutics, Boston University School of Medicine, Boston, Massachusetts.

RUTH J ABRAM (ed.) *"Send Us a Lady Physician": Women Doctors in America, 1835–1920.* New York and London· W. W Norton, 1985 255 pp. Ill. $12 95 (paperbound)

"Send Us A Lady Physician" is not so much a collection of essays as it is a lavishly illustrated, unusually detailed catalogue for a museum exhibit of the same name. It presents, in broad strokes as well as fine detail, the career histories of the 1879 graduates of the Women's Medical College of Pennsylvania within the wider context of the history of women in nineteenth-century American medicine Essays by such established scholars as Darlene Clark Hine, Barbara Melosh, Regina Morantz-Sanchez, Ronald Numbers, and Charles Rosenberg, reprinted in some cases from earlier works, do a fine job of providing concise and reliable accounts of the larger themes, such as the state of medicine at the time, or the history of women in medicine or nursing in general Details of the 1879 class are provided by Abram and the project's co-director, Ellen J. Smith. Allan R. Koslow provides an interesting commentary on the medical instruments on display Hine's essay on black women physicians is especially welcome, since the subject is rarely treated in depth in general accounts of women in medicine.

Abram was inspired to produce this exhibit by the discovery that a "great-grand-aunt," Dr Sarah Cohen May, graduated from WMCP in 1879, maintaining a successful practice despite her subsequent marriage and motherhood. She thus intended to be both scholarly and didactic, to establish a record of a previous generation of successful professional women, and to publicize their accomplishments widely as a model for the present generation.

How well has she succeeded? As a work of public history, the volume succeeds quite well; as a work of scholarship, however, it must be used with a little caution. Smith's well crafted essays represent careful research into the career paths of the class of '79, occasionally, however, I found myself disagreeing with the thrust of her interpretation, as, for example, when she describes women's medical societies as compensatory institutions She is not incorrect, but that is only part of the story. Abram's long essay on the lives of six pioneer women doctors, however, suffers from a lack of interpretation or clear thematic line. Although the choice of a biographical organization for this chapter makes sense, Abram has trouble sticking to it and often clouds her discussion by digressing into accounts of the institutions her subjects helped found. Occasionally even the rich photographic illustrations work against her by distracting the eye from the printed narrative I also noted an occasional mistake, describing, for example, Samuel Gregory as a medical graduate (p 90)

These are not grave difficulties. In fact they seem a tolerable price to pay for such an attractive, wide-ranging work. All medical and women's historians should be heartened that their subject can evoke so much general interest as to make possible this exhibit and its catalogue

Reviewed by **ELLEN MORE**, Department of History, University of Rochester, Rochester, New York.

F NEIL JOHNSON *The History of Lithium Therapy.* London Macmillan, 1984. xvii + 198 pp. Ill $49.00 (Distributed by Oxford University Press, New York).

This scholarly and well balanced portrayal of the struggle to establish lithium therapy in the field of psychiatry represents the view of an insider, F. Neil Johnson, himself a major researcher in and proponent of lithium therapy Johnson's analysis of the uric acid diathesis concept linking arthritis to mental disturbance, which dominated the early use of lithium in nineteenth-century medical practice, is particularly valuable because he documents the clear connection between lithium benzoate treatment and improvement in mental status noted by physicians such as Alexander Haig in the 1880s. The work of the Danish internist Carl Lange, also in the 1880s, was important in linking *lithia* to the treatment of periodic depression Johnson follows the history of medicinal lithium through the mineral water and substitute salt phases to the work of John Cade, the Australian psychiatrist who first observed the antimanic effect of lithium salts and who published an account of his findings in a 1949 issue of the *Medical Journal of Australia* Cade started working with lithium not because of the historical precedent of the uric acid diathesis literature but because he used lithium urate in an experiment to decrease the poisonous action of the urine of psychiatric patients that Cade had been injecting into guinea pigs Cade coincidently noticed the profound calming effect the fluid injected had on his otherwise quite excitable guinea pigs. Johnson, however, questions whether Cade's rapid jump from guinea pig to human subject was prompted by the lingering influence of the uric acid diathesis concept.

The most valuable contribution of Johnson's book is his documentation of the role of the Danish group at Aarhus University Psychiatric Hospital, particularly that of Dr Mogens Schou, in establishing lithium therapy for affective disorders Most new drug therapies require a protagonist skilled enough to do battle both rhetorically and empirically against claims of therapeutic inefficacy on the one hand and claims of toxicity on the other. Schou also played a role in encouraging Hartigan and Baastrup to publish their findings on the prophylactic role of lithium in unipolar depressive illness. Johnson traces the spread of lithium therapy to England and the United States, where the work of Samuel Gershon, Robert Prien, Ronald Fieve, and Nathan Kline receive special attention He includes a valuable chapter on the discovery of major side effects, including the monitoring of congenital abnormalities and the growth in understanding of the endocrine, cardiac, and renal effects of lithium toxicity The understanding of these side effects and the earlier development of blood level monitoring by Dr Amdi Amdisen prevented the unwarranted abandonment of lithium as a dangerous drug

Nevertheless, Johnson could not provide an answer to his own question about the lack of interest and overt resistance to the early widespread use of lithium for affective disorders He does offer several hypotheses 1) The concern with toxicity may have led to the withdrawal of lithium from the psychopharmacological scene at a time when the behavioral analysis of drug action was experiencing great popularity in the early 1960s; 2) Lithium was introduced before drug control regulations required stringent empirical evidence of efficacy; 3) The lack of a theory of the action of lithium to compete with the established amine theory of affective disorder that had dominated by the 1960s may have slowed acceptance of the drug

Because Johnson sees lithium therapy too much within the narrow confines of academic medicine and fails to appreciate the social and economic factors that retarded the acceptance of this drug, he does not consider its lack of profitability, the lack of physician education normally provided by drug company detail men, and the impact of the previous negative experience of the pharmaceutical industry with lithium as a salt substitute. These external factors clearly played a significant role in the marketing of most psychotropic drugs and have been documented in histories of other major psychoactive substances such as the work of J. P. Swazey on chlorpromazine

Reviewed by THOMAS H. JOBE, Department of Psychiatry, University of Illinois at Chicago, Chicago, Illinois.

RENATE RISSOM *Fritz Lenz und die Rassenhygiene.* Husum, West Germany: Matthiesen Verlag, 1983 (Abhandlungen zur Geschichte der Medizin und der Naturwissenschaften, no 47) 143 pp. DM39,00 (paperbound)

So far, the connections between Social Darwinian thought and National Socialism have not been sufficiently explored. Hence Hans F K. Günther's suggestive contribution on the subject of the rise of Nazism has hardly been evaluated. But while Günther was an anthropologist with strong geopolitical leanings, this criticism also applies in the case of a more pronouncedly medical nexus. Thus the significance of Alfred Ploetz, Eugen Fischer, Ernst Rüdin and Otmar Freiherr von Verschuer—all of them physicians—for ideologically inspired policy in the Third Reich has never been seriously investigated

Professor Gunter Mann of the Institute for the History of Medicine at the University of Mainz, whose research interest does extend in this important direction, shows promise of redressing these needs both through his own works and those of his senior students. Renate Rissom, who received her doctorate in Mainz, is one of these. Her dissertation constitutes the first serious analysis of the physician Fritz Lenz, co-author of a famous medical anthropology text, who was appointed an associate professor of racial hygienics at Munich University in 1923 and then, after Hitler's coming to power in 1933, moved on to a full chair in Berlin Rissom constructs Lenz's personal biography, but she also dwells on his teachings sufficiently to elucidate the intellectual debt that racist killers of the Nazi ilk owed to theoreticians such as Lenz

Even though Lenz himself comes across like a genteel armchair Nazi (he only joined the party in 1938), his body of thought, upon close analysis, was none the less lethal. The professor was always convinced of the superiority of the Nordic race, although in his writings he copiously avoided the pseudo-scientific term "Aryan " By implication, Jews and especially Negroes were regarded as inferior. Like the contemporaneous Nazis, Lenz, in explaining individual human dispositions, placed most of his currency on hereditary factors, at the expense of environmental influences. In this manner he set the stage for Heinrich Wilhelm Kranz and Siegfried Koller who, during the Second World War, worked out a plan for the physical destruction of millions of German "asocials." Regarding women, Lenz was a stern anti-emancipationist; females were only to serve breeding purposes. One of Lenz's pet peeves was the dearth of university chairs in racial hygienics ("eugenics"), but certain eugenic measures, such as sterilization, he hesitated to recommend because of a still existing lack of public understanding.

Unfortunately, Rissom's treatise, whose format is rather that of a full-scale article than of a monograph, still possesses many of the faults commonly associated with dissertations. Therefore one wonders if she would not have been better advised to postpone publication until after more fully rounded research. For instance, although Rissom seems to have a complete list of Lenz's publications, including his many book reviews, in her documentation she tends to cling merely to a few select primary writings, using very little in the way of outside, critical sources. Thus she has missed out on a couple of important aspects of Lenz's intellectual career, such as his early tangible connections with National Socialism and Adolf Hitler. In a highly significant article, which Lenz published in 1931 ("Die Stellung des Nationalsozialismus zur Rassenhygiene"), he reveals his impressions of the Führer and his Nazi movement and hence demonstrates once more why Hitler should have felt impelled to read the professor's main works during the Landsberg prison stay in 1924–25. But while the author lists this paper, along with all the others, she does not explicate its contents or even allude to it in her text. Nor does she direct the reader to the more obvious points of contact between Lenz's tenets and Nazi ideology, such as the mutual interest in Eastern European colonization by armed peasants (conjuring up visions of Darré and Himmler), and the concern about motherhood as a meritorious equivalent of male conscription, also shared by Gregor Strasser.

Reviewed by MICHAEL H. KATER, Department of History, York University, Toronto, Canada.

MORITZ LEISIBACH. ***Das Medizinisch-chirurgische Institut in Zurich, 1782–1833.*** Zurich: Verlag Hans Rohr, 1982. 136 pp. Ill. Sw. Fr. 30,00 (paperbound).

PETER STADLER (ed.). ***Die Universität Zürich, 1933–1983: Festschrift zur 150-Jahr-Feier der Universitat Zürich.*** Zurich: Universität Zürich, 1983. 807 pp. Ill. No price given.

These two publications, different as they are in content and size, are both attractively produced with well chosen illustrations, highly readable even for the generalist, and scholarly in the presentation of their subjects and supporting documentation. They testify to the high quality of the work sponsored by the Commission of University History of the University of Zurich.

Leisibach's slender volume places the Medical-Surgical Institute into the context of a time of revolution, describes vividly the background, aspirations, problems, disappointments, and successes of its teachers and students, and succeeds admirably in conveying a general sense of the place of medicine in Zurich during the decades straddling the turn of the eighteenth century

In Zurich, it appears, the traditional rift between physicians and surgeons was overcome relatively early. Both groups cooperated in the founding of the Institute. One learns about the opportunities for higher education, the issues and policies concerning public health, and the efforts of physicians and surgeons to raise the level of medical professionalism It may be of special interest to American readers to note that in 1824 the then seventeen-year-old Louis Agassiz began his studies in natural history and physiology at the Institute.

If one keeps in mind that between the termination date of Leisibach's history and the beginning of the university history there remains a gap of 100 years, one may nonetheless take the former as an introduction to Huldrych M. Koelbing's chapter on the medical faculty in the latter. Koelbing, president of the Zürich Commission on University History, begins with a fascinating analysis of the inaugural addresses of the university rectors who were members of the medical faculty He then reviews the unsuccessful struggle in 1939 against the admission of chiropractors to medical practice and the corporative history of the medical faculty and school Different sections, written by different contributors, treat the development of the various medical specialities.

While most of the book is devoted to accounts of the individual faculties, the first four chapters give us a general overview of the years from 1919 into the 1970s. The authors do not shrink from controversial issues. They write with verve and conviction of the impact of depression, fascism, and war, of anti-semitism, anti-pacifism, and neutralism among professors and students; of reforms to make university government more democratic, and of the impact of the Cold War and the Hungarian revolution of 1956. They discuss the university's expansion from 2,500 students in 1957 to 15,000 in 1980, an increase that was highlighted during the student unrest of the 1960s, and is still producing tremors today.

They all refer in various ways to the problems of the aims of a university raised by one of them: should the university become more efficient by reducing expenditures? By shortening the time students spend at the university? By turning itself into an institution committed to enabling students "to find themselves"? By increasing the standards of teaching and research? Or by doing all these things together while—as one of the authors puts it—it keeps quiet and disturbs the public as little as possible during the process of figuring out whether it should perform these functions as a public service or social welfare agency (p. 179)?

Faculty members express hope that the university will succeed in meshing the calls for grandiose reforms with the realities of teaching and research Contributors writing about and for the non-tenured staff and the students share the mood of measured dissatisfaction and limited hopefulness Together they and the faculty members make it fairly obvious that the social and economic upheavals of the last twenty years have spared not even Switzerland, that the university problems of Berkeley or Berlin have not been unknown in Zurich either

Reviewed by JURGEN HERBST, Departments of Educational Policy Studies and of History, University of Wisconsin, Madison, Wisconsin

A. McGEHEE HARVEY and SUSAN L. ABRAMS *"For the Welfare of Mankind": The Commonwealth Fund and American Medicine.* Baltimore and London: The Johns Hopkins University Press, 1986. xiii + 696 pp. Ill. $32.50

Philanthropic foundations have had a profound influence on American medicine since the beginning of this century. Their archives and the papers of their staff members are, therefore, important sources for the history of medical research and education, of the distribution, organization and financing of health services, and of the institutions of the health sector. Historians have used these archives in preparing a growing number of papers and books. Only a few scholars, however, have examined the history of the foundations themselves.

This history of the Commonwealth Fund is the first book-length study of a foundation's involvement in health affairs to be based on exhaustive archival research and interviews with grantees and staff members. Harvey and Abrams recount the internal history of the Fund and of many of its major grants in enormous, and justifiable, detail. They provide indispensable guidance for historians studying individual and institutional relationships in academic medicine in the twentieth century.

The book will also appeal to the thousands of people whose professional lives have been influenced by grants from the Commonwealth Fund. These people will find much to enjoy and may, like this reviewer, acquire new information about familiar events and old friends. Whoever perseveres to the epilogue will be treated to a spirited critique of the latest revival of familiar solutions to the problems of medical education and practice and a penetrating analysis of the causes of contemporary dilemmas in medical education.

The book also reflects unresolved problems of historiography that are not limited to the history of medicine. Scholars do not agree about how writing the history of particular institutions should relate to the mainstream of historical practice. Historians usually start with questions and then seek answers to them. The people who commission histories of institutions start with an organization they want to commemorate and, with commendably increasing frequency, to analyze and place in context. We lack models that satisfy both historians and those who commission institutional histories; books and papers that are acceptable histories of particular institutions and, at the same time, test significant hypotheses about the past. In the absence of such models, it would be wrong to blame the authors of this book for not exploring new historical questions. Instead, Harvey and Abrams should be commended for their effective use of interpretations in the secondary literature.

A second historiographical problem is the extent to which it is proper to deviate from a chronological narrative. Harvey and Abrams loosely organize their narrative around the Fund's presidencies. Yet they go beyond the years they are discussing in order to present in a single section the story of a program or of events in a particular institution. Thus readers do not have to remember a great deal from one chapter to the next. But several chapters lose their focus on the beliefs and strategies that influenced the Fund's programs in each presidency. In particular, the chapter on "Programs in Medical Education and Community Service," 136 pages long, becomes tedious when the authors abandon chronological narrative.

In sum, however, this is a solid book. The historiographical problems it raises require considerable experimentation and discussion. Few people will read all of

"For the Welfare of Mankind"; but parts of it are required for everyone concerned about medicine in this century.

Reviewed by DANIEL M. FOX, Health Sciences Center, State University of New York at Stony Brook, New York.

MICHAEL BLISS. ***Banting: A Biography.*** Toronto: McClelland and Stewart, 1984 336 pp. Ill. $Can. 10 95 (paperbound)

In his previous book, *The Discovery of Insulin* (University of Chicago Press, 1982), Michael Bliss provided a tantalizing sketch of Frederick Banting, the enigmatic figure who, according to the mythology of insulin, gave the "elixir of life" to diabetics As Bliss studied the history of the discovery of insulin, he realized "that Banting was much more interesting as a man than as a scientist" (p 10). Unfortunately for Banting's career and reputation, this is undeniably true For those more interested in insulin than in Banting's drinking, painting, and marital crises, *The Discovery of Insulin* remains the more compelling story.

Banting, who knew he was not a great scientist, hoped for an "absolutely honest" biography that would present "the true picture of the struggling human soul, with weakness, strength, ideals, shortcomings, imperfections" (p 9) The question naturally arises, is this the book Banting would have wanted? Certainly, this biography is ruthlessly honest and fundamentally different from previous, more reticent accounts, such as Seale Harris's *Banting's Miracle* and Lloyd Stevenson's *Sir Frederick Banting* (both published in 1946) Not until the 1980s, when almost all of the people involved in the controversial story had died, was it possible to deal with Banting's attitudes towards his colleagues, his relationship with Edith Roach, or his hasty and unhappy marriage to Marion Robertson, scandalous divorce, and second marriage.

Although the Nobel Prize for the discovery of insulin was awarded to Banting and J. J. R. Macleod, it was Banting who became a national hero, revered by his contemporaries as the "Greatest Living Canadian." It was Macleod, Professor of Physiology at the University of Toronto and an expert on carbohydrate metabolism, who had provided Banting with facilities, animals, and the assistance of Charles H. Best in order to test Banting's approach to the isolation of the internal secretion of the pancreas Despite Macleod's well-founded reservations about Banting's scientific knowledge and ability to do research, less than one year after Banting and Best began their quest, Macleod was able to announce the discovery of insulin. Under constant pressure to discover something even greater than insulin, Sir Frederick never stopped trying, but many of his "research adventures," such as the search for a tumor growth antidote in dirty diapers, were so ill-conceived and poorly performed as to be an embarrassment.

In providing this penetrating portrait of Banting, Bliss has transformed Sir Frederick Banting from a symbol of science into a complex and ultimately tragic human being who could not sustain the burden of greatness forced upon him by the demand for heroes

Reviewed by LOIS N. MAGNER, Department of History, Purdue University, West Lafayette, Indiana

THOMAS R. COLE and SALLY A. GADOW (eds.) ***What Does It Mean to Grow Old? Reflections from the Humanities.*** Durham, North Carolina. Duke University Press, 1986 xiv + 301 pp $39.50.

This book is a collection of essays from a conference held at the Institute of the Medical Humanities in Galveston, Texas, in 1983 The papers focus on the central question of the meaning of aging what is it like to grow old and how should those in the last stage of life be judged and treated? The editors, Thomas R. Cole and Sally Gadow, stress that these questions are now of great importance The demographic and economic realities of the modern world have caused the once ignored elderly population to become both highly visible and significant.

The editors posit two seemingly contradictory theses to the meaning of old age. Cole suggests that senescence can best be understood by examining the social relations and practices that shape it Gadow, on the other hand, argues that old age is a subjective experience, molded by an individual's personal history, relationships and perceptions

Although these two themes serve as the organizing structure of the volume, it seems to this reviewer that a more significant question shapes the majority of articles. Repeatedly, the authors attack the popularly held belief that the best—and, in fact, the only—way to experience old age is to remain productive and employed. The gerontological theory of activism, as Thomas Cole explains, had been espoused by professionals in an attempt to eradicate ageism The old, advocates of activism stressed, were still vital members of society who, despite advancing age, had much to contribute. Yet, as several of the scholars in this volume make clear, such a theory may also lead to ageism. By depicting the only worthy old age to be one of vitality, it belittles all those who do not remain employed, sexually active, or productive

Many of the authors, therefore, focus upon the creation of this theory and its negative impact upon the old Both Thomas Cole and Harry R. Moody trace the historical circumstances that led to the demeaning of the last stage of life through the society-wide debasement of such qualities as contemplation and religious authority. Robert A. Burt discusses how in contemporary society the current push to eliminate mandatory retirement laws may have unforeseen effects upon those elderly persons who cannot or do not wish to work. Christine K. Cassel describes how the current status of geriatrics categorizes all elderly patients. According to her account, physicians continue to judge their own effectiveness by standards appropriate not to the old but to other age groups. As a result, they generally ignore the chronic aged patient who has little hope of a radical recovery.

Several contributors suggest new ways of perceiving the nature of old age that may eliminate long-standing dichotomies such as healthy/disabled or active/useless Natalie Rosel portrays a neigborhood in Florida in which the varied needs and frailties of the old create a community based on interdependence and reliance. Kathleen Woodward examines the work of Yashusi Inoue whose *Chronicle of My Mother* depicts the dignity of his aged relative despite the onset of Alzheimer's disease

In its challenge to the activity theory, *What Does It Mean to Grow Old?* is a book of some importance. In addition, it contains numerous bibliographies that will be of use to scholars in the field It does, however, suffer from some limitations. First, especially for the new student of gerontology, the editors might have explained in greater detail the issues addressed and debated by the contributors. Second, the subtitle of the volume, "Reflections from the Humanities," is somewhat misleading The book does not encompass contributions from all the traditional humanities, while it does include other areas such as medicine, law, and sociology Third, and most important, the volume suffers from an unevenness among the chapters As often occurs in a collection of conference papers, the book contains several articles that neither address the question of meaning in old age nor suggest new ways of perceiving the aging process As such, these chapters limit the general usefulness of the work

Nonetheless, read selectively, *What Does It Mean to Grow Old?* raises important questions that should be considered by both scholars of gerontology and practitioners in the field.

Reviewed by **CAROLE HABER,** Department of History, University of North Carolina, Charlotte, North Carolina

HILARY KOPROWSKI and STANLEY A. PLOTKIN (eds) ***World's Debt to Pasteur: Proceedings of a Centennial Symposium Commemorating the First Rabies Vaccination.*** New York Alan R. Liss, 1985 (Wistar Symposium series, vol. 3). viii + 342 pp $39.50.

The centenary of the first human antirabies vaccination by Pasteur on 6 July 1885 has been the occasion for the publication of several books and articles The present volume gives the papers read at a symposium commemorating this event held at the Children's Hospital of Philadelphia on 17–18 January 1985. Only half of the book is concerned with history, the other half giving recent information on the virology, epidemiology and control of rabies today.

Nine articles grouped under the heading "Perspectives on Pasteur: 1885–1985" open the book. The first "Pasteur A Sketch in Bold Strokes" is by Gerald L. Geison, a connoisseur of the French scientist's life and accomplishments. It lacks the conformist or hagiographical tone so frequent in writings on Pasteur and gives the interesting information that the recent availability of his laboratory notebooks has already brought important modifications in the appreciation of his research. Its originality makes this introductory essay by far the most stimulating in this volume. A short paper by M. Starr on "Pasteur as a Painter" follows, reminding us of Pasteur's great talent as a portraitist (five of his works are reproduced in black and white). Then J Gregory Zeikus examines briefly Pasteur's work on fermentation and anaerobiosis The article by Keio Aizawa on Pasteur's work on silkworm disease is one of the weakest. The author is wholly unaware of the fact that the microsporidia *Nosema bombycis* causing "pébrine" of the silkworm was isolated by Balbiani and Béchamp (1866–67) and not by Pasteur, who did not understand correctly the etiology of this parasitic disease. With the article by M A. Amerine on wine-making (pp 67–81) we return to the problem of fermentation, and it gives a good summary of Pasteur's work on this topic with reproductions of illustrations of various apparatus from his 1873 book.

S. A. and S L. Plotkin deal with "Vaccination· One Hundred Years Later" recalling very briefly Pasteur's work on fowl cholera and anthrax, the main part of the article being concerned with modern work (after 1918). J. W. Ezzell et al discuss the genetic basis of Pasteur's work on the attenuation of *Bacillus anthracis,* the germ of anthrax We are somehow disappointed not to find in it any mention of the important fact that the vaccine against anthrax in sheep used by Pasteur and his co-workers at the famous experiment of Pouilly-le-Fort (31 May 1881) had been prepared by Roux and Chamberland. They had added potassium bichromate to it to prevent the attenuated bacilli from producing spores, thus following Toussaint's earlier work. The conclusion of the authors (p. 115) that "the method used by Pasteur to inhibit sporulation" was "growth (of *B. anthracis*) at elevated temperatures" is thus entirely wrong! C. Ponnamperuma examines Pasteur's views on the origin of life but these are only a "prétexte" for the author to present modern explanations of this cardinal problem with only a few comments about Pasteur

After a short survey of the worldwide impact of Pasteur's discoveries and the overseas Pasteur Institutes (of which a useful list is given on p 137 with their founding dates) by R. Dedonder, director of the Institut Pasteur of Paris, we come to rabies, the pretext of this volume. T J Wiktor considers "Historical Aspects of Rabies Treatment." Although written by an outstanding specialist of this disease, the article shows a total lack of historical sense One example. the alleged "Roman" [*sic*] writer Cardamus [*sic* for Cardanus], contemporary of Celsus (1st century A.D), is in fact the latinized name of the Italian physician Girolamo Cardano (1501–76)! No mention is made of the first experimental researches on rabies in the eighteenth and nineteenth centuries or the therapeutical endeavors, and names such as C G Gruner, John Hunter, E. Valli, Salm-Reifferscheidt, Magendie, and G Breschet are ignored Nor is Auzias Turenne's work on "syphilization," which aroused Pasteur's interest about vaccination, mentioned. Only six lines are devoted to V Galtier's pioneer work on the transmission of rabies to the rabbit and the successful immunization against it of sheep and goats Without Galtier's work (much praised by E Roux), there is no doubt that antirabies vaccination would not have been achieved by Pasteur and his fellow-workers Their researches are recalled in Wiktor's article as well as the history of the post-Pasteurian rabies vaccines.

The second half of the book (pp 153–330), written by various specialists, concerns modern aspects of rabies pathogenesis, virology and prevention

In conclusion, this well-produced book (if one disregards the index which is incomplete as to the names of scientists quoted) is rather disappointing for the medical historian with the exception of Geison's very fine introductory chapter which offers a new and original approach to Pasteur

Reviewed by JEAN THÉODORIDÈS, Laboratoire d'Evolution, Université Pierre et Marie Curie, Paris, France

WALTER SNEADER. ***Drug Discovery: The Evolution of Modern Medicines.*** New York·
John Wiley & Sons, 1985 x + 435 pp $21 95

The title of Sneader's book should be taken literally, because he devotes most of this work to the development of drugs after 1950. In fact, Sneader organizes his book very much like a popular pharmacology textbook of the past thirty or forty years, Goodman and Gilman's *Pharmacological Basis of Therapeutics* His sixteen chapters cover topics such as "Central Nervous System Depressants," "Analgesic, Antipyretic, and Antirheumatic Drugs," "Cardiovascular Drugs," and "Antiprotozoal Drugs." Also, the author prefers to append a chapter-by-chapter bibliography rather than adding documentation throughout the body of the book, "to avoid disrupting the readability of the text through the insertion of embedded reference numbers, bearing in mind that the majority of readers will consult the bibliography only infrequently (p. x)." Finally, *Drug Discovery* "is liberally interspersed with chemical formulae to enable those with the appropriate knowledge to relate what appears in these pages to their existing understanding of the subject (p ix)."

Sneader has put a great deal of effort into this book, which he has written in part as a basic background reference for health professionals. On that level—that is, as a book written from the standpoint of a medicinal chemist—I cannot criticize *Drug Discovery* However, as a history of the development of modern drugs, I cannot recommend it. The elements that characterize any basic history—context, continuity, analysis, interpretation, even narrative—are lacking Consider some more specific problems With the exception of a very brief and uneven introduction, the author ignores pre-nineteenth-century developments. Even though his stated emphasis is on the past century, the need for historical context alone dictates that some attention should be addressed to humoral pathology, heroic medicine, therapeutic nihilism, and so on The bibliography suggests why the author may have been negligent in this regard, for many general and specific works essential to a project like this are missing, such as Rosenberg and Warner on therapeutics, Dowling on infectious diseases and their treatment, Parascandola on antibiotics, and Bliss on insulin Even from the standpoint of nineteenth- and twentieth-century drugs, there are gaps. For example, Sneader does not cover the rise of biological drugs like antitoxins and vaccines.

Aside from the lacunae in coverage, the reader is left with several unanswered questions. First, the author often tags those drug discoveries that were serendipitous, phenomena that seem to be at least as frequent today as they were a hundred years ago But what is the point, and what does this say about research and the act of finding a new drug? Second, at some time in this account it would have been interesting to learn the author's reaction to the plethora of medicaments, an inundation that seems to be common to all classes of drugs. Is there ever a saturation point for the number of drugs at our disposal? To what extent is drug "discovery" today a conscious effort to contribute to therapeutics, or a deliberate attempt to bypass a patented drug? Third, Sneader does not tie the chapters together, individually or collectively, with a conclusion Every chapter ends just as the book does overall—quite abruptly The reader is left wondering how to connect the dozens upon dozens of drugs mentioned in each chapter, and worse, why they were important

Reviewed by JOHN SWANN, University of Texas Medical Branch, Galveston, Texas.

MARIO GONZÁLEZ-ULLOA (ed) *The Creation of Aesthetic Plastic Surgery* (reprinted from the journal *Aesthetic Plastic Surgery*) New York-Berlin-Heidelberg-Tokyo: Springer Verlag, 1985 Ill $29 50 (paperbound)

Men and women have often sought to correct what they perceive as the shortcomings of nature To meet the challenge of ameliorating ugliness or old age, surgeons have devised ingenious operations to change the appearance *The Creation of Aesthetic Plastic Surgery,* a competently written and readable book, traces the evolution of cosmetic surgery from the early and sometimes disastrous operations to the precise and sophisticated art the specialty has become

The Creation of Aesthetic Plastic Surgery is a collection of seven essays by seven authors, each of whom enthusiastically describes how surgery developed for a particular part of the body. Relying on primary sources, the book is a well illustrated history of operations to reshape unattractive noses, reduce pendulous breasts, and remove redundant folds of aging facial skin. In sum, the reader is offered a tidy overview of the specialty, whose history spans several centuries.

Through drawings and photographs, we appreciate the achievements of surgeons of the past; operations performed before the consequences of altering skin, bone, and cartilage were fully realized. In one series of early twentieth-century images, we see a gentleman whose profile is marred by a remarkably humped nose. His surgeon reduced the nose's bulk through incisions within, resulting in a decidedly handsome straight nose.

The book is punctuated by charming moments. When, seventy-five years ago, a surgeon reluctantly removed folds of loose skin from an aging woman's face, he defended his actions by claiming that he did so only "as a victim of art of feminine persuasion" (p. 10), and, in a photograph taken in the office of Madame Susanne Noël, the first woman practicing cosmetic surgery exclusively, we see a patient, her surgery complete, caught sipping a cup of tea (fig. 33).

Although *The Creation of Aesthetic Plastic Surgery* was originally intended for an audience of specialists, this should not deter readers without technical knowledge. The surgical procedures cited are accompanied by sufficient visual material to make it easy for even the non-physician to understand what has been done. The book is thoroughly and reliably researched so that it makes a useful work of reference. And, not to be ignored, the inexpensive paperbound format of this book makes it readily accessible to a wide audience.

Reviewed by SHARON ROMM, Division of Plastic and Reconstructive Surgery, Georgetown University Hospital, Washington, D.C.

BONNIE BULLOUGH, VERN L. BULLOUGH, JANE GARVEY, and KAREN MILLER ALLEN (comps.) *Issues in Nursing: An Annotated Bibliography.* New York and London: Garland Publishing, 1985. xv + 515 pp. $60.00.

Garland Publishing is offering a valuable service through its development of a reference library for researchers interested in the social sciences and history. This second bibliography by the Bulloughs et al. is a useful contribution to that collection. For many researchers this new book will simply fill a gap in their reference library, for others the compilation will offer an avenue to a literature which otherwise would remain foreign and unknown.

This bibliography attempts to guide the reader through the rather voluminous writings on various debates and issues currently extant in nursing. The compilers have tried to include materials which reflect the differing positions on the issues affecting nursing; in certain instances they have included historical citations to provide some context.

To develop major categories the compilers elected to define general issues affecting nursing and then subdivided the rest under the headings ethics, legal and regulatory issues, education, nursing research and theory, professional issues, health care delivery, nursing specialties, and clinical issues. Fortunately for the user unfamiliar with nursing language and literature, they include a detailed table of contents which guides the reader to citations on issues as diverse as death and dying, malpractice, home health care, hospital privileges for nurses, rehabilitation, and men in nursing. As the preface makes clear, the compilers favored recent and readily available published works so that the reader will have go beyond the bibliography to find less popular or unpublished works.

Each citation is accompanied by a brief annotation. The annotations vary widely in detail and usefulness. Some are not much help; for example, citation #76 is annotated "A repetition of what she says elsewhere." Others are quite complete, offering succinct and clear guidance. The citations are erratically cross-referenced so the researcher may be required to survey several areas. For instance, citation #2016, titled "Professional Ethics," is listed under the category "Professional Issues." Unless the researcher knows an author's name, the citation is likely to be missed. Entries are also undifferentiated; research articles are listed with opinion pieces and reports of meetings. Familiarity with the literature helps the user deal with this limitation but those less knowledgeable will have to be alert. The compilers do include the number of references accompanying each work cited, thereby offering a hint as to whether the work is a research article. There is an author index.

Scholars interested in the American health care system, the history of medicine and, especially, the story of American nursing will find this bibliography and its predecessor, *Nursing: A Historical Bibliography,* by the Bulloughs, useful maps to a rich and fascinating literature.

Reviewed by JOAN E. LYNAUGH, Center for the Study of the History of Nursing, School of Nursing, University of Pennsylvania, Philadelphia, Pennsylvania

BOOK NOTES

NORMAN DANIELS. *Just Health Care.* Cambridge and New York: Cambridge University Press, 1985 (Studies in Philosophy and Health Policy). xiii + 245 pp. $32.50 (cloth), $9.95 (paperbound).

Daniels' theory of justice in the provision of health care will engage philosophers, interest and frustrate scholars of health policy, and bewilder most historians. According to this theory, which Daniels expounds in three densely written chapters, "meeting health-care needs helps us maintain normal species function," this normal functioning "has a major impact on an individual's share of the normal opportunity range for his society," and "society has obligations to protect individual shares of the normal opportunity range" (p. 57). Next Daniels applies this theory to problems of access to personal medical services and the distribution of medical care to people of different ages. Finally, he applies the theory of "just health care" to public policy issues. Although only his peers can evaluate this approach to what Daniels calls "an essay in applied philosophy" (p. xi), scholars of policy and of history may wonder why philosophers attend to so few of the complexities of public life.

F. J. BANDELIN. ***Our Modern Medicines: Their Origins and Impact.*** Hankinson, North Dakota: Woodbine Publishing, 1986. xii + 228 pp. $15.45.

This is a collection of articles popular in its approach, but placing a great deal of emphasis on the history of the chemistry of the drugs involved. Virtually all classes of modern drugs are covered (e.g., antibiotics, vitamins, antihistamines, diuretics) and their history, medical indications, mechanisms of action and impact on therapeutics and health are described. Dangers and side effects seem to be generally neglected. The lengthy sections are expository, up-beat and uncritical. The book is replete with information and should prove a handy reference tool. However, since the author tells us that "this combination of technological entrepreneurs and American ingenuity" (p. xi) produced the sulfonamides and antibiotics, that "Radical ideas emanating from the American Revolution ... resulted in the French Revolution of 1792" (p. 153), and that sulfathiazole "was the first shot fired in the battle against venereal disease" (p. 7), and since he places Robert Koch in the same time frame with George III, Priestley and Watt, caution is advised.

JOHN A. C. GREPPIN. ***Baṙk‘ Gałianosi: The Greek-Armenian Dictionary to Galen.*** Delmar, New York: Caravan Books, 1985. 191 pp. No price given. (Distributed by Edwards Brothers, 2500 State Street, P.O. Box 1007, Ann Arbor, Michigan 48106.)

As suggested by the series of recently published Armenian medical texts (with Russian translations and commentaries) by the Mashtots Matenadaran at Yerevan in Soviet Armenia, there is a welcome revival of interest in this facet of medieval medicine in the Middle East. Although Greppin's edition of the *Dictionary to Galen* is directed at specialists in Armenian lexicography, the contents will also be of great interest to students of Byzantine, Classical Arabic, and Ottoman medicine, each of which has links to the well-documented but oddly ignored particulars of medieval Armenian medicine and pharmaceuticals. About 500 Greek terms are glossed in the texts explicated by Greppin, along with about 70 Arabic words, and the so-called *Dictionary* apparently had its origins some time in the period when Armenian literature underwent its first Hellenizing phases (the sixth century). It is important to note, as Greppin carefully emphasizes, that little remains of traces of Greek originals which formed the basis for the first glosses, and that the numerous manuscripts which descend into the extant texts of the *Dictionary* show rampant corruption by scribes down through the seventeenth and eighteenth centuries, even though such glossaries were still copied and re-copied long after physicians would have found them useful. It is probable that the archetype was compiled to aid Armenian doctors who had read Dioscorides and Galen in Greek, and who were unsure about specific plant names, especially as they sought herbal remedies.

Bibliography of the History of Medicine, no. 20, 1980–1984. Bethesda, Maryland: National Library of Medicine, 1985. xi + 1,300 pp. $30.00. (Order from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, S/N 017-052-00257-1.)

This is the twentieth annual volume and the fourth five-year cumulation of the *Bibliography of the History of Medicine* published by the National Library of Medicine. An indispensable guide to world-wide publications in the history of medicine, it includes references to monographs and journal articles, as well as analytical entries for symposia, congresses and similar publications. There is an author index and an index to journal abbreviations

D TUTZKE, K-J BURMEISTER, R LANGE-PFAUTSCH and G BRUSCHKE ***Charité, 1710–1985.*** East Berlin: VEB Verlag Volk und Gesundheit, 1985. 79 pp Ill. DM35,00.

This is a brief institutional and well-illustrated sketch of the Charité Hospital of Berlin which in 1985 celebrated its 275th anniversary However, more than half of the booklet is devoted to developments since World War II, including the inauguration of a "new Charité" in 1982. The historical sections describe the first transformation of an original pesthouse into a military lazaretto, the second transformation to a hospital in 1785, and eventually its linkage with the newly established University of Berlin after 1810.

THE BULLETIN RECENTLY RECEIVED*

Bryan Ashworth *The Bramwells of Edinburgh A Medical Dynasty* Edinburgh: Royal College of Physicians of Edinburgh, 1986 ix + 96 pp Ill £13.00.

Karl Ernst von Baer *Autobiography of Dr Karl Ernst von Baer* (1886). Edited by Jane M. Oppenheimer; translated by H Schneider. Canton, Mass.. Science History Publications U.S.A., 1986 (Resources in Medical History) xiv + 389 pp $25.00.

John Bannerman. *The Beatons. A Medical Kindred in the Classical Gaelic Tradition* Edinburgh: John Donald Publishers, 1986 xii + 161 pp $35 00 (Distributed in North America by Humanities Press)

Paul H Barrett et al. (eds.) *A Concordance to Darwin's "The Expression of the Emotions in Man and Animals."* Ithaca, N.Y., and London. Cornell University Press, 1986 ix + 515 pp. $45 00

Rosario Beauperthuy de Benedetti (ed.). *Ecrits sur Beauperthuy* Caracas, Venezuela, and Paris. Editions Hervas, 1985. 241 pp. Ill No price given

Bibliography of the History of Medicine, no. 21, 1985 Washington, D C : U S Government Printing Office, Bethesda, Maryland. National Library of Medicine, 1986 (NIH Publication No. 86-315) ix + 371 pp. $18 00 (U S), $22 50 (foreign) (paperbound).

Dirk Blasius. *Umgang mit Unheilbarem. Studien zur Sozialgeschichte der Psychiatrie.* Bonn. Psychiatrie-Verlag, 1986. 163 pp. DM16,80 (paperbound)

Peter J. Bowler *Theories of Human Evolution: A Century of Debate, 1844–1944.* Baltimore and London. The Johns Hopkins University Press, 1986 xiii + 318 pp. Ill $32.50.

Barbara Bromberger, Hans Mausbach, Klaus-Dieter Thomann. *Medizin, Faschismus und Widerstand: Drei Beiträge.* Cologne. Pahl-Rugenstein, 1985 (Kleine Bibliothek, no 305). 352 pp Ill DM16,80 (paperbound)

E. H. Burrows *Pioneers and Early Years A History of British Radiology* Alderney, Channel Islands: Colophon Limited, 1986 viii + 264 pp. Ill. £32.50

R. Kenneth Bussy *Two Hundred Years of Publishing A History of the Oldest Publishing Company in the United States, Lea & Febiger, 1785–1985* Philadelphia. Lea & Febiger, 1985. ix + 126 pp Ill $12 50

W. F. Bynum and Roy Porter (eds.). *Medical Fringe and Medical Orthodoxy, 1750–1850* London-Sydney-Wolfeboro, N.H · Croom Helm, 1987 vii + 274 pp. £30 00

Alexander Cameron *A Surgeon's India Diaries of Lt Col Alexander Cameron, O.B E, Indian Medical Service* Edited by Alick Cameron. Tunbridge Wells, England: By the author, 1986 xi + 424 pp. £12 25, $18 00 (Available from Dr. A. Cameron, 36 Pennington Road, Tunbridge Wells, Kent TN4 0SL, England, U K.)

Jenny Carter and Thérèse Duriez. *With Child Birth through the Ages* Edinburgh· Mainstream Publishing, 1986 287 pp Ill £12 95

James H Cassedy. *Medicine and American Growth, 1800–1860* Madison and Lon-

---

*The *Bulletin* reserves freedom of decision as to the publications to be included in this section. Items received, other than those reviewed, are ultimately incorporated into the collection of the Institute of the History of Medicine

Bull Hist Med, 1987, *61* 149–153

don. University of Wisconsin Press, 1986 (Wisconsin Publications in the History of Science and Medicine, no. 5). xvii + 298 pp. Ill. $39.50 (cloth); $19.95 (paperbound).

Alain Corbin. *The Foul and the Fragrant. Odor and the French Social Imagination.* Translated by Miriam L. Kochan, with the assistance of Roy Porter and Christopher Prendergast. Cambridge, Mass.: Harvard University Press, 1986. vii + 307 pp. $25.00.

Pietro da Cortona. *The Anatomical Plates of Pietro da Cortona* (reprint). With a new introduction by Jeremy M. Norman. New York: Dover Publications, 1986. 64 pp. Ill. $6.95 (paperbound).

Paule Dumaître. *Ambroise Paré. Chirurgien de quatre rois de France.* Paris: Librairie Académique Perrin; Fondation Singer-Polignac, 1986. 409 pp. F180,00 (paperbound).

Stuart J. Edelstein. *The Sickled Cell. From Myths to Molecules.* Cambridge, Mass., and London: Harvard University Press, 1986. x + 197 pp. Ill. $25.00.

John Elkington. *The Poisoned Womb: Human Reproduction in a Polluted World.* New York: Penguin Books, 1987. 255 pp. Ill. $6.95.

Rashi Fein. *Medical Care, Medical Costs: The Search for a Health Insurance Policy.* Cambridge, Mass., and London: Harvard University Press, 1986. viii + 240 pp. $20.00.

Valerie A. Fildes. *Breasts, Bottles and Babies. A History of Infant Feeding.* Edinburgh: Edinburgh University Press, 1986. xxviii + 462 pp. Ill. $30.00 (Distributed by Columbia University Press).

Luis S. Granjel. *Historia política de la medicina española.* Salamanca, Spain: Universidad de Salamanca, 1985. 233 pp. $16.00 (paperbound).

Heinz Hartmann. *Once a Doctor, Always a Doctor. The Memoirs of a German-Jewish Immigrant Physician.* Buffalo, N.Y.: Prometheus Books, 1986. 189 pp. $18.95.

Christian Heath. *Body Movement and Speech in Medical Interaction.* Cambridge and New York: Cambridge University Press, Paris: Editions de la Maison des Sciences de l'Homme, 1986. xiv + 200 pp. $32.50.

Wolfgang-Hagen Hein (ed.). *Alexander von Humboldt: Leben und Werk.* Frankfurt am Main, West Germany: Weisbecker Verlag, 1985. 334 pp. Ill. No price given.

Daniel Heinrich. *Dr. med. Charlot Strasser (1884–1950). Ein Schweizer Psychiater als Schriftsteller, Sozial- und Kulturpolitiker.* Zurich: Juris Druck, 1986 (Zürcher Medizingeschichtliche Abhandlungen, no. 186). iv + 182 pp. Sw. Fr. 48,00.

O. Helfer and R. Winau. *Männer und Frauen der Medizin: Illustrierte Kurzbiographien zur Geschichte der Medizin.* Berlin and New York: Walter de Gruyter, 1986. 206 pp. Ill. DM19,80 (paperbound).

Darlene Clark Hine (ed.). *Black Women in the Nursing Profession. A Documentary History.* New York and London: Garland Publishing, 1985 (History of American Nursing series). xiv + 165 pp. Ill. $25.00.

J. Rogers Hollingsworth. *A Political Economy of Medicine. Great Britain and the United States.* Baltimore and London: The Johns Hopkins University Press, 1986. xix + 312 pp. $37.50.

M. S. R. Hutt and D. P. Burkitt. *The Geography of Non-Infectious Disease.* Oxford-New York-Tokyo: Oxford University Press, 1986. xvi + 164 pp. $42.50 (cloth), $22.95 (paperbound).

Italian Broadsides Concerning Public Health. Documents from Bologna and Brescia in the Mortimer and Anna Neinken Collection, New York Academy of Medi-

cine. Edited and annotated by Saul Jarcho [Texts in Italian] Mount Kisco, N.Y.. Futura Publishing Company, 1986 (History of Medicine series, no 51) xxx + 421 pp. $49.50.

Stanley W Jackson *Melancholia and Depression From Hippocratic Times to Modern Times.* New Haven, Conn, and London. Yale University Press, 1986 x + 441 pp $35 00.

William James *Essays in Psychical Research.* With an introduction by Robert A McDermott. Cambridge, Mass, and London Harvard University Press, 1986 (The Works of William James, vol. 16) xxxvi + 684 pp. $42 50

Dieter Jetter. *Das europäische Hospital Von der Spätantike bis 1800.* Cologne DuMont, 1986 255 pp. Ill. DM44,00

Greta Jones *Social Hygiene in Twentieth-Century Britain* London-Sydney-Wolfeboro, N.H.: Croom Helm, 1986. 180 pp £25.00.

Ellen Jorisch-Wissink *Der Kinderpsychiater Moritz Tramer (1882–1963)* Zurich· Juris Druck, 1986 (Zürcher Medizingeschichtliche Abhandlungen, no. 184) 75 pp Sw. Fr. 19,00 (paperbound)

Robert Kanigel *Apprentice to Genius. The Making of a Scientific Dynasty.* New York Macmillan Publishing, 1986. xiv + 271 pp. $19 95

Daniel J. Kevles. *In the Name of Eugenics Genetics and the Uses of Human Heredity* Berkeley and Los Angeles. University of California Press, 1985. x + 426 pp $9 95 (paperbound)

Sally Gregory Kohlstedt and Margaret W Rossiter (eds.) *Historical Writing on American Science Perspectives and Prospects* Baltimore and London The Johns Hopkins University Press, 1986 (originally published as *Osiris,* second series, vol. 1, 1985) 321 pp Ill. $15 00 (paperbound).

Molly Ladd-Taylor (ed) *Raising a Baby the Government Way. Mothers' Letters to the Children's Bureau, 1915–1932* New Brunswick, NJ, and London: Rutgers University Press, 1986. x + 212 pp. $18.00.

Judith Walzer Leavitt. *Brought to Bed. Childbearing in America, 1750–1950* New York and Oxford: Oxford University Press, 1986. 284 pp Ill $21 95

Robert Jay Lifton. *The Nazi Doctors· Medical Killing and the Psychology of Genocide* New York. Basic Books, 1986. xiii + 561 pp $19 95.

J B Lyons *An Assembly of Irish Surgeons Lives of Presidents of the Royal College of Surgeons in Ireland in the Twentieth Century* Dublin· Glendale Press for the Royal College of Surgeons in Ireland, 1984. xiii + 210 pp Ill. IR£10 00

J B Lyons. *Scholar and Sceptic: The Career of James Henry MD, 1798–1876* Dublin Glendale Press, 1985 88 pp. Ill No price given

Robert L McCartor and George S Tyner *Instant Doctor The Story of a New Medical School,* vol 1, *Eye of the Storm* Lubbock· Texas Tech Press, 1986 vii + 219 pp Ill $48 50.

Jane Maienschein (ed.) *Defining Biology. Lectures from the 1890s* Cambridge, Mass., and London Harvard University Press, 1986 xiii + 337 pp Ill. $25.00

Elizabeth Malcolm. *"Ireland Sober, Ireland Free" Drink and Temperance in Nineteenth-Century Ireland* Dublin· Gill and Macmillan, New York Syracuse University Press, 1986 xii + 363 pp $27 50.

Reto Christian Möhr. *Der Chirurg Paul Clairmont, 1875–1942.* Zurich Juris Druck, 1986 (Zürcher Medizingeschichtliche Abhandlungen, no 183) 99 pp Sw Fr 25,00 (paperbound)

Axel Hinrich Murken (ed) *Die Medizin auf dem Weg ins 20 Jahrhundert Die Bib-*

liothek des ehemaligen Arztlichen Lesevereins zu Aachen Bestandskatalog Aachen, West Germany: Verlag Murken-Altrogge, 1986 (Studien zur Medizin-, Kunst- und Literaturgeschichte, vol 30). Ill. 272 pp DM38,00 (paperbound)

Mark E. Neely, Jr. and R Gerald McMurty *The Insanity File. The Case of Mary Todd Lincoln.* Carbondale and Edwardsville, Illinois Southern Illinois University Press, 1986 xiv + 203 pp Ill $19.95

Ronald L Numbers and Darrel W. Amundsen (eds). *Caring and Curing. Health and Medicine in the Western Religious Traditions.* New York: Macmillan; London, Ontario· Collier Macmillan, 1986. xx + 601 pp. $35 00

Rolf Ortmann. *Die Jüngere Geschichte des Anatomischen Instituts der Universität zu Köln, 1919–1984 65 Jahre in bewegter Zeit* Cologne and Vienna Bohlau Verlag, 1986 (Studien zur Geschichte der Universität zu Koln, no. 3). 136 pp. Ill. DM58,00

Charlotte F. Otten (ed.). *A Lycanthropy Reader Werewolves in Western Culture* Syracuse, N.Y.. Syracuse University Press, 1986 xvi + 337 pp Ill. $32.95 (cloth); $14.95 (paperbound).

Bert Edward Park *The Impact of Illness on World Leaders* Philadelphia University of Pennsylvania Press, 1986. xxiii + 373 pp. Ill. $24.95.

K David Patterson. *Pandemic Influenza, 1700–1900 A Study in Historical Epidemiology* Totowa, NJ · Rowman & Littlefield, 1986. xvii + 118 pp. Ill. $29 50

Oglesby Paul *Take Heart. The Life and Prescription for Living of Dr. Paul Dudley White.* Boston· Francis A. Countway Library of Medicine, 1986. xviii + 315 pp Ill $18 95 (Distributed by Harvard University Press).

Richard E Peschel and Enid Rhodes Peschel. *When a Doctor Hates a Patient and Other Chapters in a Young Physician's Life* Berkeley-Los Angeles-London University of California Press, 1986 xi + 189 pp $16 95

Jacob E. Poulson and Egill Snorrason (eds) *Nicolaus Steno, 1638–1686 A Re-Consideration by Danish Scientists* Gentofte, Denmark Nordisk Insulinlaboratorium, 1986. 224 pp Ill DKK120,00 (paperbound) (Distributed by Poul Kristensens Forlag)

William B. Provine *Sewall Wright and Evolutionary Biology.* Chicago and London: University of Chicago Press, 1986 xvi + 545 pp. Ill $30 00

Jacques M. Quen (ed) *Split Minds/Split Brains· Historical and Current Perspectives* New York and London. New York University Press, 1986 xiv + 186 pp. $38.00 (Distributed by Columbia University Press).

Fred Rosner. *Modern Medicine and Jewish Ethics* Hoboken, NJ. Ktav Publishing, New York Yeshiva University Press, 1986. xiv + 405 pp $22 50 (cloth); $14.95 (paperbound).

David Sanders with Richard Carver. *The Struggle for Health Medicine and the Politics of Underdevelopment* London: Macmillan, 1985. xiv + 232 pp Ill No price given (paperbound).

Heinrich Schipperges. *Der Garten der Gesundheit Medizin im Mittelalter.* Munich and Zurich: Artemis Verlag, 1985. 296 pp Ill DM39,80.

Hermann Schmid *Kurt von Neergaard, 1887–1947 Professor für physikalische Therapie.* Zurich: Juris Druck, 1986 (Zürcher Medizingeschichtliche Abhandlungen, no 182). 75 pp Sw Fr 19,00 (paperbound).

Heinz Schott (ed.). *Franz Anton Mesmer und die Geschichte des Mesmerismus· Beiträge zum internationalen wissenschaftlichen Symposion anlässlich des*

250.Geburtstages von Mesmer, 10. bis 13. May 1984 in Meersburg. Stuttgart. Franz Steiner, 1985 288 pp. DM59,00 (paperbound)

Julius Henri Schultz. *Albert Molls Arztliche Ethik.* Zurich Juris Druck, 1986 (Zürcher Medizingeschichtliche Abhandlungen, no 185) iii + 99 pp Sw. Fr. 27,00 (paperbound).

Jean-Charles Sournia *Histoire de l'alcoolisme* Paris Flammarion, 1986 323 pp F125,00.

S. B. Sutton *Crossroads in Psychiatry A History of the McLean Hospital* Washington, D C: American Psychiatric Press, 1986. xii + 372 pp. Ill $27.00 (Order from Mrs. Evelyn Stone, Director of Scientific Publications, McLean Hospital, 115 Mill Street, Belmont, Massachusetts 02178).

Yasuyori Tamba *The Essentials of Medicine in Ancient China and Japan: Yasuyori Tamba's Ishimō: Part I, Books 1 and 2, Part II, Books 26, 27 and 28* Translated and edited by Emil C H Hsia, Ilza Veith and Robert H. Geertsma 2 vols. Leiden. E J Brill, 1986. xiii + 313 pp 241 pp 170,00 guilders; $77.25 (Part I); 130,00 guilders; $59 00 (Part II).

K.-D. Thomann (ed.). *Tradition und Fortschritt in der Orthopädie. Historische Ausstellung zur 72. Tagung der Deutschen Gesellschaft für Orthopadie und Traumatologie, 1985 in Frankfurt am Main* Stuttgart. Georg Thieme Verlag, 1985 114 pp. Ill. No price given.

Rudolf Virchow *Medizin und Naturwissenschaft. Zwei Reden 1845* Introduction by Werner Scheler. East Berlin. Akademie-Verlag, 1986 (Dokumente der Wissenschaftsgeschichte). 80 pp DM30,00

Rudolph Wagner. *Samuel Thomas von Soemmerrings Leben und Verkehr mit seinen Zeitgenossen* (1844). Edited by Franz Dumont Stuttgart and New York: Gustav Fischer Verlag, 1986 (Soemmerring-Forschungen, no 2). 742 pp. DM118,00

John Walton, Paul B Beeson, and Ronald Bodley Scott (eds.). *The Oxford Companion to Medicine,* 2 vols Oxford and New York: Oxford University Press, 1986 xxi + 1,524 pp. Ill. $95.00

Martha C. Ward. *Poor Women, Powerful Men America's Great Experiment in Family Planning.* Boulder, Colorado, and London· Westview Press, 1986. 189 pp. Ill. $33 00 (cloth); $14 95 (paperbound).

Ursula Weisser. *Die Geburt der Physico-medica aus dem Geist der Leopoldina? Zur Frühgeschichte der Erlanger Physikalisch-Medizinischen Sozietät und ihrer Entwicklung im ersten halben Jahrhundert ihres Bestehens (1808–1858)* Erlangen, West Germany. Verlag Palm & Enke, 1986 (Sitzungsberichte der Physikalisch-Medizinischen Sozietät zu Erlangen, new series, vol 2, no 1) v + 98 pp Ill. DM30,00 (paperbound)

Melvyn R. Werbach. *Third Line Medicine. Modern Treatment for Persistent Symptoms* New York and London Routledge & Kegan Paul, Arkana Paperbacks, 1986. xiii + 215 pp $8 95 (paperbound). (Available in the U.S from Methuen.)

Rolf Winau and Hans Peter Rosemeier (eds) *Tod und Sterben* Berlin and New York Walter de Gruyter, 1984 xvi + 430 pp. Ill DM29,80 (paperbound).

Helen R. Woolcock. *Rights of Passage Emigration to Australia in the Nineteenth Century.* London and New York: Tavistock Publications, 1986 xviii + 377 pp Ill $49.95 (Distributed in the U S by Methuen).

CONTRIBUTORS TO THIS NUMBER

HAROLD J COOK, assistant professor in the Department of the History of Medicine at the University of Wisconsin Medical School, 1300 University Avenue, Madison, Wisconsin 53706, has recently published a monograph entitled *The Decline of the Old Medical Regime in Stuart London* (1986)

JOHN M. EYLER is an associate professor in the Department of History of Medicine, Biomedical Library, 510 Diehl Hall, University of Minnesota, Minneapolis, Minnesota 55455. He is currently writing a book on the career of Arthur Newsholme

DAVID MCBRIDE is an assistant professor in the Departments of History and Afro-American and African Studies at the State University of New York at Binghamton. He is presently completing a book on Afro-Americans, urban medicine, and civil rights. His address is Department of History, SUNY, Binghamton, New York 13901.

STEVEN M. OBERHELMAN, an associate professor of classics at Texas Tech University, Box 4649, Lubbock, Texas 79409, also edits the classical journal *Helios.* He has published extensively on ancient medicine, oneirology, and prose rhythms

SAMUEL B THIELMAN, an assistant professor of psychiatry and head of the Section of Geriatric Psychiatry at the Medical College of Georgia, is currently writing a history of antebellum American therapeutics for madness His address is 3830 Crystal Court, Augusta, Georgia 30907.

In Search of the Modern Hippocrates

EDITED BY ROGER J. BULGER

Essays by some of the wisest observers of modern medicine probing various forces affecting health care today, including new technology, corporate hospitals, and the core relationship between patient and doctor. Ending with an updated code of ethics, this book provides an important guide to medicine in today's complex world.

ISBN 0-87745-160-5 $27.50

Exploring the Concept of Mind

EDITED BY RICHARD M. CAPLAN

How old is the mind? Can creativity be learned? How does the mind speak its pain? Eminent scholars explore these and other questions as they probe the age-old mystery of the human mind. Contributors include Julian Jaynes, Hilary Putnam, Maxine Greene, and Doris Grumbach.

ISBN 0-87745-144-3 $15.95

UNIVERSITY OF IOWA PRESS
Iowa City, Iowa 52242

CHARLES C THOMAS • PUBLISHER

PRIMITIVE SURGERY: Skills Before Science *by* **Spencer L. Rogers.** This review of pretechnological surgery examines the motivations and practices of the peoples of prehistoric Europe and Asia, the classical world, Oceania and Australia, and the Americas. It includes data on instruments, operating conditions, and results. *'85, $21.75*

A PICTORIAL HISTORY OF MEDICINE (5th Ptg.) *by* **Otto L. Bettmann.** " . . . yet another triumph for Dr. Bettmann in a long procession of achievements. It provides materials that couldn't possibly be found elsewhere."—Norman Cousins. *'79, $25.25*

AN EARLY HISTORY OF CRANIOTOMY: From Antiquity to the Napoleonic Era *by* **Louis Bakay.** Drawing on original sources, the author begins with the earliest craniotomies, traces the gradual development of the practice, and demonstrates its relation to modern neurosurgery. *'85, $25.25*

EARLY HISTORY OF HUMAN ANATOMY: From Antiquity to the Beginning of the Modern Era *by* **T. V. N. Persaud.** The author not only profiles the illustrious anatomists, he also discusses scholars, their ideas, and the relation of anatomical study to historical and cultural development. *'84, $24.75*

Order direct for fastest results • Write or call (217) 789-8980 • Books sent on approval

Postage paid on MasterCard, Visa & prepaid orders • Catalog sent on request

2600 South First Street • Springfield • Illinois • 62794-9265

RUTGERS

Doctor Dock: Teaching and Learning Medicine at the Turn of the Century

Horace W. Davenport
360 pp. 14 illustrations. Cloth, $35.00

From 1899 to 1908, Doctor George Dock held a medical diagnostic clinic for medical students at the University of Michigan. From over 6,800 pages of transcripts of these classes, Davenport has distilled and explained the passages that best reveal Dock's witty character and the state of teaching medicine at the turn of the century.

The White Plague: Tuberculosis, Man, and Society

René and Jean Dubos
277 pp. Cloth, $27.00; Paper, $12.00.

This new reprint of the 1952 edition of this classic features a new foreword by David Mechanic and a new introduction by Barbara Gutmann Rosenkrantz.

Homes for the Mad: Life Inside Two Nineteenth-Century Asylums

Ellen Dwyer
285 pp. Cloth, $32.00

Dwyer looks at the internal dynamics and multiple social functions of two New York State institutions: Utica, for the acutely ill; and Willard, for the chronically ill. She compares the history, clientele, and operation of the two institutions, examines the backgrounds of clients, explores how these people ended up in asylums, as well as diagnoses and treatments.

In the Family Way: Childbearing in the British Aristocracy, 1760-1860

Judith Schneid Lewis
313 pp. Cloth, $29.00

A lively study of the childbearing practices of fifty aristocratic British women as recorded in diaries and correspondence. Lewis analyzes marriage patterns, doctor-patient interactions, the experience of pregnancy, and places her findings in the larger context of the changing nature of marriage and family life.

Rutgers University Press, 109 Church Street, New Brunswick, NJ 08901

Psychiatry *from* its beginnings

The History and Influence of the American Psychiatric Association

New

Walter E. Barton, M.D.
APA Past President, 1961–1962

Not since 1916 has such an important and far-reaching history of the American Psychiatric Association been written. This volume not only examines the APA's role in the development of modern psychiatry, but it looks at the Association's impact on the mental health movement as a whole. A landmark work in medical history.

March 1987/368 pages/$34.00/ORDER #48-231-1

Crossroads in Psychiatry
A History of McLean Hospital

New

S.B. Sutton

How did McLean Hospital become one of the most prestigious mental institutions in the United States? This volume, tracing McLean Hospital's distinguished history back to its founding in 1811, is told against the broader developments in psychiatry. An excellent model for studying social and economic factors which affect policy decisions and treatment methods in the delivery of mental health services.

1986/384 pages/$27.00/ORDER #48-253-2

To order, write American Psychiatric Press, Inc.

Department S2
1400 K Street, NW
Washington, DC 20005

Add $3.00 for shipping.
Please pay in U.S. dollars.
Prices subject to change without notice.

or call TOLL-FREE
1-800-368-5777
Operator S20
(In Wash., DC call 682-6262.)

Please have your credit card number ready.

Princeton University Press

Doctors and Medicine in Medieval England, 1340–1530

Robert S. Gottfried

This book is a social, cultural, and intellectual history of medicine and medical practitioners between the Black Death and the foundation of the Royal College of Physicians. The author dicusses two principal themes. First is the discrediting of University-trained physicians, followers of traditional Greek humoral theory, during the fourteenth-century epidemics of plague and other new diseases, and the rise of surgeons, who were buoyed by clincial experience and service in royal armies. Second is the role of doctors as an important part of a growing bourgeois middle class. The work draws not only on traditional sources but also on a data base assembled by the author, which contains biographical information on 2,200 doctors. 11 illustrations. $45.00

Epidemics and Mortality in Early Modern Japan

Ann Bowman Jannetta

Ann Jannetta demonstrates that epidemic diseases, which took an enormous toll in early modern Europe, were much less threatening in Japan during the same period. The two and one-half centuries of peace and stability known as the *Pax Tokugawa* (1600–1868) were also characterized by relatively low and stable mortality. Dr. Jannetta finds no evidence that bubonic plague, which periodially devastated Europe from the fourteenth to the seventeenth centuries, was epidemic in Japan. Smallpox was the biggest killer, infecting virtually every child before the age of five, but measles was rarely seen. Epidemics of dysentery, typhus, and cholera were uncommon before the mid-nineteenth century. 7 illustrations. 2 maps. $30.00

New in Paperback

A Once Charitable Enterprise

Hospitals and Health Care in Brooklyn and New York, 1885–1915

David Rosner

"...highly relevant to courses providing an introduction to the U.S. health care system."
—*The Journal of Health Administration Education*

"...marks an important step forward in studies in the social history of medicine."
—*Allan M. Brandt, Social Science & Medicine*

Illustrated. P: $11.50

At your bookstore or

Princeton University Press
41 William Street, Princeton, NJ 08540

Creativity and Disease

How Illness Affects Literature, Art and Music

Revised Fourth Edition
Philip Sandblom, M.D., Ph.D.

The fourth edition of this beautiful volume illustrates the link between creative genius and disease. Rather than focusing solely on the deteriorating effects of disease, *Creativity and Disease* shows how the great creators used their talents to transform suffering into great works of art.

***Creativity and Disease* features:**

- *the lives and works of such noted authors as Charlotte Bronte, Rilke, Chekhov and Jorge Luis Borges, artists as Klee, Monet, Matisse and Frida Kahlo, and composers as Beethoven, Chopin and Mahler*
- *discussions of the effects of specific physical disorders such as tuberculosis, mental disease, defects of hearing and sight and arthritis*
- *67 black & white plates and 11 full color plates reproducing artwork and manuscripts*

Norman Cousins praised the third edition as "an exquisite journey into the quintessentials of the civilized mind...a work of art in itself."

Using the lives and works of notable artists, Philip Sandblom demonstrates in this richly illustrated, beautifully designed volume how disease, in a sense, motivates art and that artistic expression compensates for the physical impairment.

1987 143 pages 89313-066-4 $18.95 cloth

Send me _____ copy(ies) of *Creativity and Disease* at $18.95 each.
___ My personal check is enclosed.
___ Charge my ___Visa ___MasterCard
(Interbank # ______________________)
Acct # ______________________ Expires __________
Signature ______________________
Name ______________________
Address ______________________
City/State/Zip ______________________

Send orders to: George F. Stickley Company
210 West Washington Square
Philadelphia, PA 19106

Credit card customers: order by phone by calling 215-922-7126

SUBSCRIBE

BULLETIN OF THE HISTORY OF MEDICINE

Subscription Rates

Individuals	$24.00/*1 year* $48.00/*2 years*
Institutions	$41.00/*1 year* $82.00/*2 years*

The *Bulletin of the History of Medicine* analyzes advances in medical science, examines changes in clinical practices, and explores how the responses of societies to health care needs have varied over time and across cultures.

Published quarterly in March, June, September, and December.

BULLETIN OF THE HISTORY OF MEDICINE

Prepayment required. Subscribers in Canada and Mexico please add $2.75 postage. Subscribers outside of North America add $6.50 air freight. *Payment must be drawn on a U.S. bank or made by international money order.* Maryland residents add 5% sales tax.

Bulletin of the History of Medicine

Mail to:

Journals Publishing Division
The Johns Hopkins University Press
701 W. 40th St., Suite 275
Baltimore, Maryland 21211 USA

☐ Enclosed is my check made payable to the Johns Hopkins University Press

totaling $________________.

Please charge:

☐ Visa ☐ MasterCard

Acct. # ________________

Expires ________________

Signature ________________

This is a ☐ new subscription ☐ renewal *(renewing subscribers please include your mailing label from a recent issue).*

Name ________________

Address ________________

City ________________

State ________ Zip ________

Country ________________
(if outside U.S.)

UBSCRIBE

IBRARY RECOMMENDATION

ear Librarian:

would like to recommend acquisition of the following
hns Hopkins University Press journal.

urnal title: ______________________________

hank you,

______________________ ______________________
gnature *please print name*

____
epartment

lease send orders to:

he Johns Hopkins University Press *Journals Publishing Division*
01 W. 40th St., Suite 275, Baltimore, Maryland 21211 USA

OURNALS FROM JOHNS HOPKINS

UMANITIES

merican Journal of Philology
allaloo
iacritics
LH (English Literary History)
he Lion and the Unicorn
iterature and Medicine
LN
odern Language
otes)
ew Literary History
hilosophy and Literature
heatre Journal
ide Angle

SOCIAL STUDIES

Bulletin of the History of Medicine
Human Rights Quarterly
ICSID Review
Jerusalem Journal of International Relations
Journal of Modern Greek Studies
Reviews in American History

JUDAIC STUDIES

Modern Judaism
Prooftexts
Studies in Zionism

MATHEMATICS

American Journal of Mathematics

ALL 1987

7.4.88

HE AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE

BULLETIN OF THE HISTORY OF MEDICINE

THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

OLUME 61 NUMBER 3

Founded by Henry E. Sigerist

Editor
Caroline Hannaway

Editorial Assistant **Carol Hamblen**

Advisory Editorial Board

Gert H. Brieger, *Chairman*

Darrel W. Amundsen
Edward C. Atwater
Saul Benison
John B. Blake
Jerome J. Bylebyl
James H. Cassedy
Luke E. Demaitre
Toby Gelfand
Gerald N. Grob
Robert P. Hudson
Saul Jarcho
Genevieve Miller
John Norris
John Parascandola
Guenter B. Risse
Charles E. Rosenberg
Barbara G. Rosenkrantz
Todd L. Savitt
Wesley D. Smith
Thomas B. Turner

Publisher

The Johns Hopkins University Press

Cover: The Fall cover is a splendid depiction of the physician-saints Cosmas and Damian. Here the healing ministry of the medical profession is celebrated in terms of a heroic sanctity. Etching from the mid-eighteenth century by Paul Troger. Courtesy of the National Library of Medicine.

Second-class postage paid at Baltimore, Maryland and at additional mailing offices
© Copyright 1987 by The Johns Hopkins University Press
ISSN 0007-5140

FALL 1987 VOLUME 61 NUMBER 3

BULLETIN OF THE HISTORY OF MEDICINE

THE AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE
THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

CONTENTS

Koch's Comma Bacillus: The First Year
WILLIAM COLEMAN 315

What's in a Name? Aspirin and the American Medical Association
JAN R. McTAVISH 343

The Origins of the Islamic Hospital: Myth and Reality
MICHAEL W. DOLS 367

Medical Practice in Imperial Berlin: The Casebook of Alfred Grotjahn
PAUL WEINDLING 391

A History of Semitertian Fever
SAUL JARCHO 411

American Association for the History of Medicine: Report of the Sixtieth Annual Meeting
EDWARD C ATWATER 431

Medico-Historical News and Activities

Correspondence and Reports 442
Announcements 444

Essay Reviews

Medieval English Medicine
FAYE MARIE GETZ 455

Defining American Biology: New Books in the History of American Science
SHARON KINGSLAND 462

Book Reviews

Etienne Trillat *Histoire de l'hystérie*
Reviewers DORA B WEINER and HERBERT WEINER 471

Leonard J. Bruce-Chwatt and Julian de Zulueta. *The Rise and Fall of Malaria in Europe· A Historico-Epidemiological Study.*
Reviewer. DAVID J BRADLEY 473

David C. Lindberg and Ronald L Numbers. *God and Nature: Historical Essays on the Encounter between Christianity and Science.*
Reviewer. JOHN HEDLEY BROOKE 474

Kristian Bosselmann-Cyran (ed) *"Secreta mulierum" mit Glosse in der deutschen Bearbeitung von Johann Hartlieb.*
Reviewer. FRANCIS B BRÉVART 476

Harold J. Cook *The Decline of the Old Medical Regime in Stuart London*
Reviewer: THEODORE M BROWN 477

K. David Patterson. *Pandemic Influenza, 1700–1900 A Study in Historical Epidemiology.*
Reviewer. JOHN NORRIS 479

Joaquín de Villalba. *Epidemiologia española.*
Antonio Carreras Panchón. *Joaquín de Villalba (1752–1807) y los origenes de la historiografía medica española*
Reviewer· DONALD B COOPER 480

John C. Gunn *Gunn's Domestic Medicine,* intro Charles E. Rosenberg
Reviewer VIRGINIA SMITH 481

Friedrich Tiedemann *Das Hirn des Negers mit dem des Europäers und Orang-Outangs Verglichen,* intro. Hans-Konrad Schmutz.
Reviewer· FRANCIS SCHILLER 482

Justus von Liebig and August Wilhelm Hofmann *Justus von Liebig and August Wilhelm Hofmann in ihren Briefen,* ed. William Hodson Brock.
Reviewer. WILLIAM A. SMEATON 483

Harvey Green *Fit for America: Health, Fitness, Sport and American Society.*
Reviewer: JAMES HARVEY YOUNG 484

Frederick Law Olmsted. *The Papers of Frederick Law Olmsted,* vol. 4, *Defending the Union. The Civil War and the U S Sanitary Commission,* ed. Jane Turner Censer.
Reviewer: JAMES O BREEDEN 486

Mary Elizabeth Carnegie. *The Path We Tread· Blacks in Nursing, 1854–1984*
Darlene Clark Hine (ed). *Black Women in the Nursing Profession· A Documentary History.*
Reviewer JOAN E LYNAUGH 487

Jean-Claude Beaune *Le vagabond et la machine essai sur l'automatisme ambulatoire; médecine, technique et société en France, 1880–1910.*
Reviewer TOBY GELFAND 489

E. H. Burrows. *Pioneers and Early Years. A History of British Radiology.*
Reviewer: JEAN M GUY 490

Robert Jay Lifton. *The Nazi Doctors. Medical Killing and the Psychology of Genocide*
Reviewer: MICHAEL H KATER 491

Martha C. Ward. *Poor Women, Powerful Men: America's Great Experiment in Family Planning.*
Reviewer: JAMES W. REED 493

Charles D. Kochakian. *How It Was: Anabolic Action of Steroids and Remembrances.*
Sir Alan S. Parkes. *Off-Beat Biologist: The Autobiography of Alan S. Parkes*
Reviewer: MERRILEY BORELL 495

H Tristram Engelhardt, Jr. *The Foundations of Bioethics*
Robert J. Levine. *Ethics and Regulation of Clinical Research,* 2d ed.
Reviewer: DANIEL M FOX 496

Richard E. Peschel and Enid Rhodes Peschel. *When a Doctor Hates a Patient and Other Chapters in a Young Physician's Life*
Reviewer: J B LYONS 498

Book Notes 499

Contributors to this Number 505

Volume 61 • Number 3 • Fall 1987

Copyright © 1987 by The Johns Hopkins University Press

Manuscripts (typewritten, in duplicate, with text and footnotes double spaced), review copies of books, and correspondence relating to the publication of papers should be addressed to

The Editor
Bulletin of the History of Medicine
1900 E Monument Street
Baltimore, Maryland 21205

Contributors of articles will receive 25 reprints without covers free of cost. An order form for additional reprints, giving the cost, is sent with the galley proof

The *Bulletin* is published quarterly March, June, September, December One volume of at least 500 pages is published during the year

The *Bulletin of the History of Medicine* is indexed and abstracted in *Biological Abstracts, Cambridge Scientific Abstracts, Chemical Abstracts, Current Contents, Excerpta Medica, Index Medicus, ISI/BioMed, Science Citation Index, Writings on American History, Historical Abstracts, Arts & Humanities Citation Index, International Bibliography of Periodical Literature,* and *International Bibliography of Book Reviews.*

Subscription prices $41 00, institutions, $24 00, individuals Subscribers in Canada and Mexico, add $2 75 postage, outside North America, add $6.50

New subscriptions are entered to begin with the first issue of the current volume and should be sent to

The Johns Hopkins University Press
Journals Publishing Division
701 W. 40th St.
Baltimore, Maryland 21211

Second class postage paid at Baltimore, Maryland, and at additional mailing offices

Claims for replacement of missing numbers must be received within 3 months (6 months in the case of foreign subscribers) following publication of the number.

Members of the American Association for the History of Medicine receive the *Bulletin* on payment of $35 00 annual dues, of which $19.00 is for a year's subscription Do *not* send changes in address of members and application for membership to The Johns Hopkins University Press, but to the Secretarv-Treasurer.

Dr Edward C Atwater
Dept. of Medicine
University of Rochester Medical Center
Rochester, New York 14642

All rights reserved No portion of this journal may be reproduced by any process or technique, without the formal consent of the editors and publisher except copies of the article may be made for personal or internal use on the condition that the copier pay a fee of $1 00 per copy for copying beyond that permitted by Sections 107 or 108 of the U S Copyright Law through the·

Copyright Clearance Center, Inc
21 Congress Street
Salem, Massachusetts 01970

This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale

Typeset and printed by The Sheridan Press, Hanover, Pennsylvania.

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39 48-1984. ⊗™

KOCH'S COMMA BACILLUS: THE FIRST YEAR*

William Coleman

In a report dated 2 February 1884, Robert Koch announced the isolation of the comma bacillus, the bacterial cause of the major new epidemic disease of nineteenth-century Europe, Asiatic cholera. Koch's famous letter represents a turning point in a complex process of discovery that had begun years earlier and would not be complete until the middle of the following decade.

The identification of the comma bacillus as the cause or, at very least, a reliable diagnostic sign, of cholera was peculiarly difficult. First of all, the investigator had to have a ready supply of the supposed pathogen—but in Europe no such supply was available except during irregular epidemic outbreaks. Moreover, the comma bacillus did not lend itself naturally or readily to transmission to animals; a seemingly crucial element in demonstrating its pathogenic role was thus missing. It was difficult, too, to discover whether the bacillus existed outside the human body and whether (and if so, how) it passed from one victim to another. Mere awareness of the existence of the comma bacillus was of little or uncertain value to prophylaxis and public health. Knowledge of the relationship between the bacillus and the disease was crucial.

The discovery of the cholera bacillus was an integral part of the creation of the germ theory of disease. Microscopical observation and description provided, certainly, important information, yet microscopy alone was an insufficient instrument. The bacteriologist or pathologist who limited himself to what could be seen on a slide could miss the mark very widely indeed. There were, for example, many bacteria (vibrios) that closely resembled Koch's comma bacillus (which, in fact, is not a bacillus but a vibrio). These other bacteria were not, however, pathogenic or, although inducing a severe diarrhea, bore no relation to Asiatic cholera. Broader knowledge was needed, and bacteriologists and pathologists quickly learned to direct their attention to distinctive bacterial growth patterns on culture media, simple physiological differences, epidemiological behavior,

---

*I thank Saul Benison, T D Brock, Timothy Lenoir, and an unnamed referee for criticism and advice, and Gerald L Geison for other assistance Research support from the National Institutes of Health–National Library of Medicine (Grant LM-04382) is gratefully acknowledged The translations throughout are my own

Bull. Hist. Med., 1987, *61:* 315–342

and, in the 1890s, serological reaction. Koch's success in identifying the microbial cause of cholera, and the failure of French rivals who at the same time set themselves precisely the same goal, depended upon his recognition of the range of inquiries required to establish a strong presumption of causation. Koch was moving toward a biological view of bacteria, all the while recognizing their new medical significance.

The early eruptions of Asiatic cholera in Europe and North America that began in 1830 have now been studied in considerable detail[1] Koch's letter of February 1884 was a product of the threat of another and late outbreak of the disease. He was writing from Calcutta, well known as a center of endemic cholera, but he had spent the preceding months in Egypt. European physicians and administrators had noted with anxiety the appearance of cholera in Egypt in June 1883, and most expected that the disease would cross the Mediterranean Sea and explode once again on European soil.

But times had changed. Perhaps this disease could be scientifically understood and then mastered. What was new in the cholera investigations of 1883–84 was the existence of a novel and powerful model for the spread of infectious disease. This was the germ theory of disease.[2] Koch had been influential in the creation of the germ theory; between 1876 and 1882 he or his associates had identified the bacteria associated with anthrax, wound infections, diphtheria, and tuberculosis. French investigators had also had much success in discovering the relation between microorganisms and disease. There was good reason to believe, therefore, that success would accompany the search for the cause of cholera. Louis Pasteur's expectations, in particular, were high; he could ill imagine yet another German triumph The Germans, especially Koch, maintained a lower national profile and in the end prevailed.

In this essay I recount the events of the first year of knowledge of Koch's comma bacillus. I stress the differences between the French and German investigations of epidemic cholera and attempt to isolate the several sets of evidence that persuaded Koch that a causal conclusion might legitimately be drawn. More suitable, perhaps, would be the claim that Koch simply discovered or isolated the comma bacillus, the idea of cause being passed in suggestive silence Koch realized that ironclad evidence for causation failed him, but neither he nor important contemporaries hesitated to speak of "cause" and "causation" and to hold that a genuine causal connection had been established. Surely logical rigor was thereby violated, yet the biology of the situation provided well-informed observers with sufficient persuasion that Koch had properly joined a specific disease and a definite microbe. The epidemiological implications of the discovery of the comma bacillus will also be briefly noted, after 1884 these became the subject of sharpest dispute among students of Asiatic cholera

---

[1] See Charles E Rosenberg, *The Cholera Years The United States in 1832, 1849, and 1866* (Chicago University of Chicago Press, 1962), Michael Durey, *The Return of the Plague British Society and the Cholera, 1831–32* (Dublin Gill and Macmillan, 1979), François Delaporte, *Disease and Civilization The Cholera in Paris, 1832,* trans Arthur Goldhammer (Cambridge, Massachusetts MIT Press, 1986), Roderick E McGrew, *Russia and the Cholera, 1823–1832* (Madison. University of Wisconsin Press, 1965) Also August Hirsch, *Handbook of Geographical and Historical Pathology,* trans Charles Creighton, 3 vols (London New Sydenham Society, 1883–86), 1· 394–493

[2] See Friedrich Loffler, *Vorlesungen uber die geschichtliche Entwicklung der Lehre von den Bacterien* (Leipzig F C W Vogel, 1887), pp 164–244, Emile Duclaux, *Pasteur The History of a Mind,* trans E F Smith and Florence Hedges (Philadelphia W B Saunders, 1920), pp 225–321, William Bulloch, *The History of Bacteriology,* 2d ed. (London· Oxford University Press, 1960), pp 139–68

It was not, in fact, the comma bacillus per se but Koch's insistence on the (already familiar) view that cholera is transmitted by microbe-infested drinking water that reawakened the central issues of a longstanding but still unresolved and often heated cholera debate. In Germany and in much of Europe, Max von Pettenkofer stood supreme both in the study of Asiatic cholera and in the development of epidemiological theory Pettenkofer's ground-water theory, developed between 1855 and 1865, assigned a decisive role to soil and water conditions in the preparation and propagation of a cholera epidemic and denied entirely the claim that the disease could be spread by drinking water. The comma bacillus might or might not play a part in the ground-water theory, but certainly it did not answer the central, as Pettenkofer saw them, epidemiological questions.

During the first year of study of the comma bacillus these issues were recognized and remarked upon but did not yet dominate discussion of the disease. The year ended with the first Berlin Cholera Conference (26 July 1884). Pettenkofer remained in Munich, but other spokesmen for the ground-water theory made clear the nature of the coming collision between the two leading figures in German hygiene. It is the period from the arrival of the French and German investigators in Egypt (August 1883) to the conclusion of the first Berlin conference that I deal with in this essay.[3] By the time of the second Berlin Cholera Conference (4–8 May 1885) much new evidence had become available, and opposed interpretive positions had attained sharper definition. It was in Berlin in 1885 also that Koch and Pettenkofer first met in the public forum and the fierce rivalry between hygiene as taught in Munich and bacteriology as promulgated from Berlin became a notorious fact of life in the German medical and administrative worlds.

I

A telegraphic dispatch from Alexandria, dated 24 June 1883, informed Europe of the outbreak of cholera in Egypt. French authorities were seriously concerned. France's Mediterranean ports were in frequent contact with Egypt and the Levant, and the primary lesson for Europeans of the great epidemic of 1865–66 was that Asiatic cholera, which in earlier epidemics had advanced slowly into Europe only by land, could also arrive there by sea, via the Middle East, and with great rapidity. Spurred into action by Pasteur, the French Comité consultatif d'hygiène publique (the nation's principal hygienic advisory body) and then the national government determined to send a scientific commission to Egypt. Pasteur understood well both the new threat and the scientific possibilities in studying that threat. "Since the last cholera epidemic," he said, "science has made great progress in the matter of communicable diseases."

---

[3] An extensive review of virtually all study of Asiatic cholera through the turn of the century is provided by Georg Sticker, *Abhandlungen aus der Seuchengeschichte und Seuchenlehre,* 2 vols in 3 (Giessen Alfred Topelmann, 1908–12), 2 101–521 Sticker's opinion follows closely that of Max von Pettenkofer

> Every such disease that has been subjected to close study has shown itself to be due to a microscopic organism that develops in the body of man and animals and causes havoc there, often of a fatal kind. . . . Thus, the present state of knowledge compels us to turn our attention to the possible existence, either in the blood or in an organ, of an infinitely small [creature] whose nature and properties would provide a reasonable explanation of all the peculiarities of cholera, including both the morbid symptoms it induces and the character of its communication.[4]

Disagreements regarding the composition of the commission delayed departure, but the French investigators were on Egyptian soil by 15 August 1883 and remained there until 9 October.

The French commission included two pathologists (Isidore Straus and Edmond Nocard) and two members of Pasteur's own laboratory (Emile Roux and Louis Thuillier).[5] Their investigations, conducted in the European Hospital in Alexandria, focused on postmortem examinations, microscopical pathology, and the culture of microorganisms. Especial attention was paid to the possibility of pathological disturbances in the small intestine, kidneys, and blood. The commission reported the massive presence of bacteria in the lumen and wall of the small intestine of cholera victims and recognized that, although intestinal desquamation and erosion of the intestinal villi seemed to occur, the most common bacterium did not penetrate beyond the mucosal tissue layer. The French carried out twenty-four autopsies, many conducted immediately after death. This seemed a great advantage, for under such circumstances it was most unlikely that the observed pathological changes could have been caused by the action of putrefactive or other non-choleric microbes that might have invaded the body soon after death. Straus and his associates also noted in their first report, read in Paris on 10 November 1883, that there were numerous microbes in the gut and that, among these, there was a "slender bacillus, about two microns in

---

[4] Louis Pasteur, ["Lettre au sujet d'une mission française chargée d'étudier le choléra en Egypte"], *Oeuvres de Pasteur,* ed Pasteur Vallery-Radot, 7 vols (Paris Masson, 1922–39), 6 539–40

[5] The formation and affairs of the French commission are discussed at length by Pasteur in *Correspondance de Pasteur, 1840–1895,* ed Pasteur Vallery-Radot, 4 vols (Paris Flammarion, 1940–51), 3 364–402

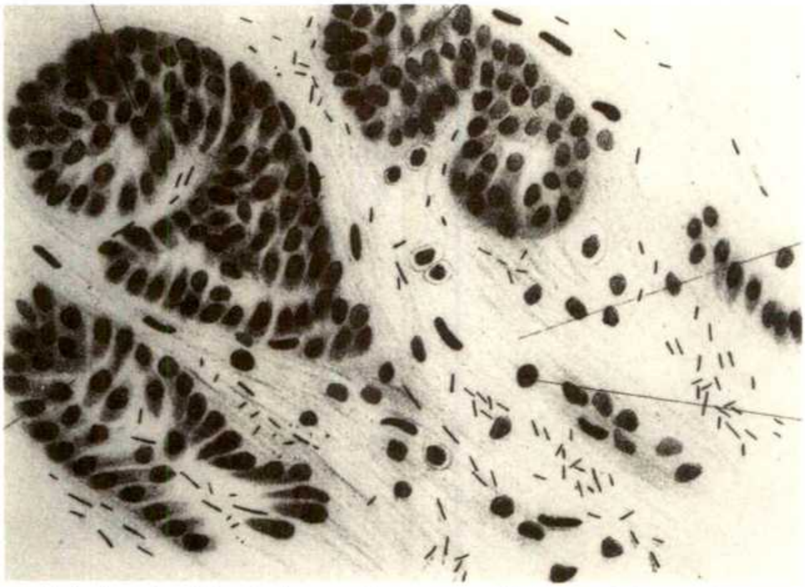


Fig. 1. Stained section of intestinal mucosa from a victim of fast-acting cholera (ca. 600 ×). The authors call attention to the "diverse microorganisms" exhibited and explain that this image is offered because it portrays the bacillus, that is, the scattered rod-shaped elements seen between the masses of the glands of Lieberkühn, that "one meets most often and in greatest abundance." No further discrimination between bacterial forms was ventured. (Isidore Straus et al., "Recherches anatomiques et expérimentales sur le choléra observé en 1883, en Egypte," *Archives de physiologie normale et pathologique,* 3d ser., 1884, *1:* plate 11, fig. 1.)

length, that closely resembled the tubercle bacillus." It was this bacillus which tended to penetrate to the intestinal submucosa. It was also "without doubt" the same bacillus that Koch had described in his first report (17 September 1883) on the work of the German cholera commission.[6] To Straus and his colleagues the fact that this bacillus was often unusually abundant in the cholera gut suggested that this microbe found there a peculiarly favorable culture medium.

What was the meaning of this discovery? Had the French investigators not only seen a host of distinctive microbes but actually discovered the bacterial cause of Asiatic cholera? They had not and, in fact, insisted upon this point. Although the slender tubercle-like bacillus was usually abundant in cases of cholera, it was not always so. Straus placed great emphasis on certain negative cases, that is, fulminating cases of cholera (known as *cholera sicca* or *cholera siderans*) in which death arrived within ten to twenty hours of onset. In such cases, rice-water stools were few or lacking and few

---

[6] Isidore Straus et al., "Exposé des recherches sur le choléra en Egypte," *Comptes rendus des séances et mémoires de la Société de biologie,* 1883, *35:* 567. See also the popular presentation of the commission's findings: [Isidore Straus et al.], "Le choléra et la mission française en Egypte," *Revue scientifique,* 1883, *6:* 644–47.

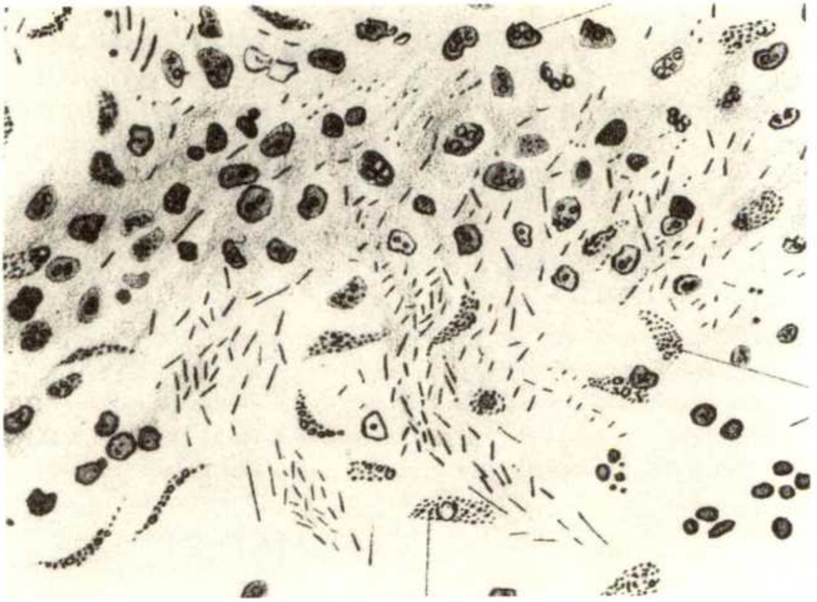


Fig. 2. Section of intestinal submucosa from a woman sick for four days before death (ca. 600×). One sees, amid leucocytes and other cellular components, an apparently exclusively rod-shaped community of bacilli. (Straus et al., "Recherches anatomiques," plate 11, fig. 2.)

or no tubercle-like bacilli could be seen in the stained sections of the small intestine. Yet, Straus observed, it was just these most devastating cases, where death came with stunning rapidity, that should have exhibited the microbe in greatest abundance and clarity. It should have done so, that is, if the microbe had been truly "fundamental and characteristic" of the disease, and this Straus doubted.[7] There thus seemed to be little connection between abundance of microbes and the appearance or intensity of disease.

These facts led Straus in his popular account of the work of the French expedition to a very cautious conclusion:

> Whereas the bacillus of which we are speaking may always be present and dominant in the intestine of cholera victims, we do not believe ourselves authorized to state that it is the specific cause of the disease. Certainly its predominance may be taken as an indicator of its role in cholera but, in order to reach sound conclusions in this kind of research, other proofs are required. There is a cycle of experimental tests that must be traversed before real conviction can be attained.[8]

---

[7] [Straus et al.], "Le choléra et la mission française en Egypte," p. 645.

[8] Isidore Straus et al., "Recherches anatomiques et expérimentales sur le choléra observé en 1883, en Egypte," *Archives de physiologie normale et pathologique*, 3d ser., 1884, *1*: 394. The authors made no reference to the nature of the tests they called for. The sheer diversity of bacteria observed in the intestine, including the "slender bacillus," suggests that in some cases secondary invasion may have occurred following death.

Koch, Straus added, had not yet reported on his technical procedures for studying cholera etiology. This proved to be no great liability, however, for the French eagerly directed their inquiry to targets other than the gut and they did not yet appreciate a central feature of Koch's procedures, namely, the fact that the culture process itself can return valuable information regarding bacterial identity.

Like Pasteur and Koch, Straus and his associates recognized the crucial importance of animal experimentation in the study of communicable disease.[9] The French commission took as its program the threefold task of establishing the presence of a microbe in the tissues of the cadaver, establishing a pure culture of that microbe, and using this microbe to attempt to induce cholera in experimental animals.[10] The French apparently were successful in obtaining pure cultures of various microbes that prospered on the human frame. They did not report the identity of these microbes and they offered no description of their culture techniques beyond a mere statement, namely, that different media were used, including (in addition to Koch's great innovation, solid media), various liquid media, and that temperature was varied. Neither the French nor, later, Koch, made clear reference to the duration of the culture process, a matter of major importance in the experimental induction of a cholera response. What is striking, however, is the use Straus made of these pure cultures.

The investigators had found that mixed bacterial cultures grown directly from cholera stools did not induce cholera-like symptoms in experimental animals. These cultures surely offered a bacterial stew: from the gut and into the culture medium had gone a mix of "bacteria of varied dimensions, some mobile and some not, [and also] isolated micrococci as well as micrococci gathered in a zooglea or in chains."[11] Perhaps the problem was the fact of mixture itself; perhaps each microbe might act differently if introduced alone and from a pure culture. The French therefore injected subcutaneously a variety of individual microbial species into guinea pigs, rabbits, mice, and chickens. The results were wholly disappointing: "Cultures of certain of these microorganisms showed themselves innocuous and others

---

[9] Animal experimentation had rapidly become, in fact, the touchstone of study of contagious disease Observed Straus, "Today we have no assured ideas regarding contagious diseases except for those that we can transmit to animals" ("Le choléra et la mission française en Egypte," pp 646–47) Pasteur informed the Minister of Commerce (3 August 1883) "[The] great difficulty in the study of human contagious diseases is the impossibility of performing experiments on man My research program [thus] demands without exception numerous experiments on animals" (*Correspondance de Pasteur,* 3 375) Koch opened his commentaries from Egypt and India with similar views "Which of these two options is the correct one—whether the infective process or a bacterial invasion is the fundamental event—can only be decided when one seeks to isolate the bacteria from morbid tissue, raise these bacteria as pure cultures and then reproduce the disease by means of transfer of the infection to animals For such work it is necessary above all to have susceptible animals at one's disposal" (which Koch did not) Robert Koch, "Berichte über die Tätigkeit der zur Erforschung der Cholera im Jahre 1883 nach Ägypten und Indien entsandten Kommission," in *Gesammelte Werke von Robert Koch,* ed. Georg Gaffky et al , 2 vols in 3 (Leipzig Georg Thieme, 1913) report of 17 September 1883, 2(1) 3

[10] [Straus et al], "Le choléra et la mission française en Egypte," p 644

[11] Straus et al , "Exposé des recherches sur le choléra en Egypte," p 566

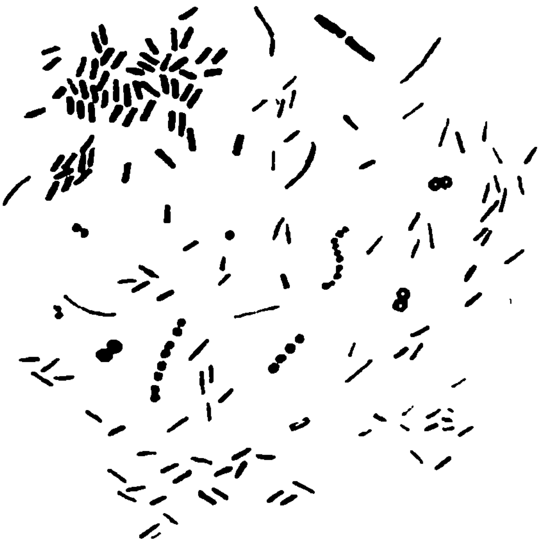


Fig. 3. Stained (ca 600×) assemblage of microbes taken exclusively from the intestinal contents of a cholera cadaver How soon after death the sample was taken is not stated, it is obvious that a mixed collection of bacteria is present Straus and his associates provided no illustrations made from experimental cultures (Straus et al., "Recherches anatomiques," plate 11, fig 4)

induced septicemias and various disturbances. None, however, gave rise to a disease analogous to cholera."[12]

The French, in fact, were dealing with only part of the question. They viewed a pure culture, the core concept of the germ theory of disease, as only another source from which to draw in seeking to transfer cholera to an experimental animal, and thus failed to examine carefully the growth and character of these cultures themselves. Koch's many early efforts to induce cholera in animals also failed. He, however, attended to the life of the microbe as well as to the pathological effects that it might be supposed to cause. He observed that the host of microbes commonly found in persons sick or dead from cholera could be sorted out and that one among them, often the most common, presented characteristic culture traits. Its growth on defined media was distinctive in appearance, temporal development, and certain chemical features. Koch took his microbes seriously; they were biological species and demanded comprehensive biological circumscription. Combined with certain definite and seemingly persuasive facts pertaining to the presence or absence of the cholera germ in cases of cholera or non-cholera, this new kind of evidence helped limit the etiological possibilities regarding the disease Epidemiological evidence then narrowed these possibilities even further.

---

[12] Straus et al, "Recherches anatomiques et expérimentales sur le choléra observé en 1883," p 418

The French worked under a serious and self-imposed handicap. They knew very well that cholera severely disrupted intestinal function, yet it was obvious from the outset that they expected to discover the true seat of the disease in the blood. Cholera, many held, was a systemic disease, due perhaps to a poison, very possibly a poison produced by a microbe. Contrary to those (few) who argued that cholera pathology was highly localized in the gut wall, many in the 1880s claimed that the cholera poison was released into the blood and there worked its unfortunate effect. The circulatory system provided a superb distribution system. Pasteur had sent his men abroad with full expectation that the French team would discover the cause of cholera in the blood. Well-established pathological findings, repeated in Egypt, had over and again pointed to primary involvement of the blood: in certain cases, the blood became turgid in the deeper vessels and almost black in color. Death from cholera, it appeared, was a form of asphyxiation. There existed, too, the equally familiar clinical observation, much stressed by the French, that, in fulminating cases, death might occur without the appearance of intestinal lesions or even without the ostensibly characteristic fluid discharges of cholera. This combination of no (apparent) intestinal disturbance and profound systemic effect—total bodily collapse, it seemed—appeared to be explicable only on the basis of changes that had occurred in the blood and, thus, throughout the body. Only much later was this false view definitively overthrown.

Such evidence and argument, obviously, directed attention away from the gut. Looking at the blood, the French appeared to find a new direction. In their reports, Straus and his associates strongly suggested but could not prove that certain pale, very small "elongate bodies" found in the blood were the cause of cholera. These bodies appeared to increase in number during culture, and they seemed to form short chains.[13] However, they could not be isolated in pure culture and there was no evidence whatsoever that indicated their pathogenicity. Subsequent opinion, including that of Koch, came to agree that the French had seen only blood platelets and not the cause of cholera.

Unhappily, the French commission had no opportunity to explore its discovery more closely. Thuillier, a promising young microbiologist raised in the Pasteur tradition, died of cholera in Egypt, and soon thereafter the work of his dispirited associates was halted by the end of the epidemic. The three survivors returned to France, there to ponder their findings but unable immediately to expand upon their research. Like everyone else, they realized that direct investigation of cholera could only be pursued where the disease was endemic or appeared in an epidemic of sustained duration. The peak of the Egyptian epidemic had passed well before the French commission arrived, and the epidemic was in rapid decline during its stay. The same difficulties faced the German investigative team. The latter, however, spurred on by Koch's invincible wanderlust—the cholera expedition marked the beginning of his many journeys to exotic lands—enjoyed the great advantage of moving directly to the center of the cholera phenomenon, India and Calcutta. It was in Calcutta that the decisive work on the comma bacillus was completed.

---

[13] *Ibid*, p 411

II

The German cholera commission had reached Alexandria on 24 August 1883. Drawn from the staff of the new Imperial Health Office (Kaiserliches Gesundheitsamt), the German commission included Koch, his close associate Georg Gaffky, the naval doctor Fischer, and the chemist Treskow. Koch filed monthly reports on work accomplished and preliminary conclusions ventured, and these *Berichte,* which quickly found their way into the popular as well as the medical and administrative press, record in detail the emerging knowledge of the comma bacillus[14]

In the first month of work in Egypt, Koch and his associates examined twelve persons sick with cholera and conducted autopsies on ten other victims.[15] Like the French, they quickly confirmed diagnosis of the disease. Microscopical study of this fresh material revealed diverse but no unusual bacteria in the blood or organs. It was evident, however, that great masses of a particular bacterium existed in the lumen and among the cells of the surface layers of the small intestine. This bacterium was not found in the blood or organs. It seemed identical to bacteria previously observed on slide preparations, slides that had been made earlier by others from material taken from cholera victims in India, sent to Berlin, and now brought to Egypt for comparative study. Two decisive questions, questions that defined the causal issue, were immediately posed. Were these bacteria, should they prove to be a distinctive biological species, foreign invaders of the body and thus the presumptive cause of cholera? Or was a pathological process, a set of cataclysmic events commonly known as "cholera" the primitive fact? Did this process disrupt the gut in such a manner that bacteria that were already (or always) present now found an opportunity to multiply and attack the intestinal lining, possibly augmenting the damage due to cholera but not

---

[14] The *Berichte* were published in the *Reichsanzeiger, Deutsche medizinische Wochenschrift,* and elsewhere They were reprinted in Gaffky's general report on the Egyptian-Indian cholera expedition and again in Koch's collected works [*Werke,* 2(1) 1–19], I cite this latter edition An informative account of Koch's investigations, drawn from the *Berichte,* is given by H Mochmann and W Kohler, "The clarification of the etiology of Asiatic cholera by the German Cholera Commission under the direction of Robert Koch in the year 1883–1884," *Indian J Pub Health,* 1983, *27* 6–20 See also the brief but incisive account by Norman Howard-Jones in *The Scientific Background of the International Sanitary Conferences, 1851–1938* (Geneva. W H O, 1975), pp 46–57, and Hans Schadewalt, "Die Entdeckung des Cholera-Erregers," *Deutsche medizinische Wochenschrift,* 1975, *100* 2119–22

[15] The following discussion is drawn from the reports of 17 September 1883 and 10 November 1883 Koch, *Werke,* 2(1) 1–9

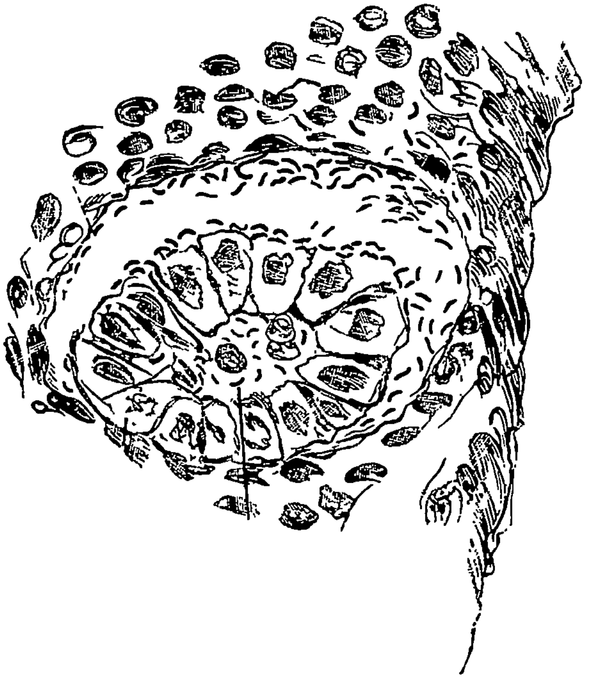


Fig. 4. Section of the intestinal mucous membrane, intestinal lumen on the right (600×) The area of the small gland has been invaded by comma bacilli, but these do not penetrate the basal membrane (indicated by the short dashed line on left) and thus do not enter the substance of the organ. (Koch et al, "Die Conferenz zur Erorterung der Cholerafrage," in *Deutsche medizinische Wochenschrift,* 1884, *10.* 500)

acting as the cause of that disease? Crudely put, did cholera cause the bacilli and not vice versa? There was, of course, a third position, namely, that bacteria had nothing to do with cholera. But Koch knew (the carrier concept refuted this claim) that "healthy" persons never exhibited the vibrio, whereas those sick with cholera always did so. This third position, thus, stood outside of Koch's serious consideration of the cholera phenomenon. As will be seen, Koch always favored the first position but insisted that only animal experimentation could resolve the matter. It was a great vexation indeed that during the first year of the new cholera studies transmission of the disease to animals proved impossible

But Koch and his associates had already uncovered other evidence that strongly pointed to the causal role of a cholera bacillus. As noted, the microbe had been found in the evacuations or in the small intestine of every cholera victim examined. Of equal importance, the bacillus could not be found in non-cholera deaths, that is, it could not be found in any of the numerous cases in which death occurred in association with severe but non-choleric diarrhea or intestinal disturbance Although based on a small sample, these findings satisfied two central demands of the germ theory of disease: the suspect bacterium had to be present in all cases of the disease in question, and it had to be absent in all cases of other diseases, however similar. The members of the French commission reported no findings in this domain, if, in fact, they examined the subject at all, and in so doing they wholly overlooked the force of the absence argument when offered in conjunction with the presence argument. Here was a major difference between the two groups of investigators, and also a surprising one, as Straus and Nocard were both experienced pathologists. However, at this early stage in the investigation even Koch was duly cautious regarding the meaning of his findings, stating only that the new bacterium stood in "some kind of relation" to Asiatic cholera.[16]

Had the German commissioners remained in Egypt, where, again, the cholera epidemic had run its course, or returned to Berlin, their work would surely have ended in ambiguity or error, as did that of the French. Koch, however, had no intention of halting his investigation. With the continued support of the German Imperial authorities, he moved his team to India. The Germans arrived in Calcutta on 11 December 1883 and remained there until forced home by the heat in early April 1884. Ironically, their host in Calcutta, the chief physician at the Medical College Hospital, J. M. Cunningham, was an ardent proponent of soil and atmospheric factors in cholera causation.[17] In his first report from India, submitted only five days after his arrival, Koch confined himself to announcing a research agenda, a program designed to seize, if possible, the specific cause of the disease and also to use that new knowledge to design and implement effective prophylactic measures. Koch's agenda included continued study of postmortem materials (non-choleric as well as choleric), preparation of pure cultures of the new bacterium with the aim of establishing important biological parameters (culture conditions, spore formation, length of life), and renewed efforts to induce experimental cholera in animals (for which the necessary preliminary was to seek "natural" cholera in animals in this, the presumed homeland of the disease).[18] Other inquiries were to be directed to the relation between cholera and prevailing air, water, and soil conditions; movement of cholera from endemic to non-endemic regions; and assessment of the incidence of the disease among soldiers, aboard ships, and in prisons. Koch's group thus hoped to undertake a combined pathological, biological, and epidemiological program of inquiry. No part of the investigation was unessential, but pathology received decidedly less attention and pathological processes only a reassertion of traditional understanding.

---

[16] Report of 17 September 1883 *ibid*, 2(1) 3

[17] See J M Cunningham, *Cholera What Can the State Do to Prevent It?* (Calcutta. Superintendent of Government Printing, 1884) Pettenkofer easily appropriated Cunningham to his (Pettenkofer's) "localized" cause in a foreword prepared for the German edition, "Vorwort zur deutschen Ubersetzung," Cunningham, *Die Cholera. Was kann der Staat thun, sie zu verhuten?* (Braunschweig Friedrich Vieweg, 1885), pp v–xi Cholera studies in India are briefly reported by Ira Klein, "Cholera. theory and treatment in nineteenth-century India," *J Indian Hist*, 1980, *58* 35–51

[18] Report of 16 December 1883 Koch, *Werke*, 2(1) 9–11 Koch was gradually developing his methodological strategies between 1878 and 1882 The plan followed in the cholera work of 1883–84 (pure culture, localization in body organs, inoculation of experimental animals) had been clearly established early in the anthrax disputes with Pasteur see Koch, "Ueber die Milzbrandimpfung Eine Entgegnung auf den von Pasteur in Genf gehaltenen Vortrag," [1882], *Werke*, 1 207–31.

With increasing insistence, Koch in India stressed the presence-absence argument. All efforts to induce cholera in animals failed, and no similar disease could be found in any member of the Indian fauna. Koch would have to build his case on other evidence. All together, forty-two postmortems on cholera victims were conducted in Calcutta, most immediately following death. The evacuations of an additional twenty-eight victims were subjected to laboratory analysis. In every case, whether one examined stained sections of the small intestine or cultures made from cholera stools, a small, tubercle-like bacillus was present. To the eye, this bacillus seemed in no way different from the bacillus isolated from cholera victims in Egypt. At the same time, Koch and his collaborators hastened to perform autopsies on numerous persons who had died of other serious intestinal complaints. They prepared, too, cultures from sufferers of dysentery, simple diarrheas, recovered cholera victims, and healthy persons. In no instance, in the microscopical sections taken from the former or in the stool cultures made from the latter, could the new bacterium be found.

The presence-absence issue was, as K. Codell Carter has pointed out, of decisive importance to Koch's etiological argumentation.[19] Use of the pair constituted, in fact, a major advance on previous discussions within the growing community focusing on the possibility of a germ theory of disease. Jacob Henle, Rudolf Virchow, and, especially, Edwin Klebs had all accepted the presence or "sufficiency" (Carter) argument: given the presence of disease *x*, we can expect also the presence of microbe *x*, and vice versa. But this was a partial and inherently weak argument. The microbe could, in fact, be but the concomitant to other factors present, any one (or several) of which might well be the true cause of the disease. What was needed was a strong argument, and this Koch provided; it was to be used together with the presence argument. The cholera vibrio (like the anthrax or tubercle bacillus) was the "necessary" cause of the disease because, in its absence and with other factors remaining the same (insofar as this is ever possible in biology), the disease, too, remained absent. Koch's attention to the condition of the non-cholera sick and the healthy was, thus, not a casual inquiry, but an indispensable step in gathering the information required to form a persuasive causal statement regarding the role of the vibrio in inducing the disease.

Carter also makes the important point that the presence-absence arguments were of especial significance to public health concerns, whereas the presence argument was of particular interest to pathologists—which Henle,

---

[19] K. Codell Carter, "Koch's postulates in relation to the work of Jacob Henle and Edwin Klebs," *Med Hist*, 1985, *29* 353–74

Virchow, and Klebs all were.[20] The latter were interested in the course of a disease, its processes, and the changing condition of the host. For this, one cause was as good as another: the investigator needed only to launch the disease process; there was no need to worry unduly about its precise cause. But if one wished to *prevent* the occurrence of a particular infectious disease, one must have access to the necessary cause or causes of that disease. Here specific information, notably, identification of the causal microbe, was essential, for with this information a very precise target was defined for the design and application of prophylactic measures. Perhaps, Carter suggests, although Koch is often said to have built (and did, in fact, build) on the evidence and argument of his forerunners and contemporaries working in pathology, equally influential was the active public health movement of which he was a part (and whose purposes the Kaiserliches Gesundheitsamt primarily served) and which placed prevention, that is, removal of the cause of disease, first among its values.

Koch needed to determine, too, whether his bacterium, the comma bacillus, not only was visually distinct but was also a definite biological species. Could the comma bacillus be distinguished in ways other than form alone from other, occasionally quite similar, species? Such specificity was, in fact, a crucial datum, for in question was biological specificity, the very reality of a bacterium as a species. Further, it was just this specific identity that, in order to create a forceful etiological argument, had to be set in conjunction with a second specificity, that of the disease itself. Otherwise stated, in the presence of a given disease the causal argument required the presence of a given bacterial species (and in the absence of that disease, the absence also of the bacterium)—and this presupposed the existence and demonstration of bacterial species in general The latter, however, were not until the 1870s an assured proposition.

It was Ferdinand Cohn who first understood the decisive importance of a biological view of bacteria and its relevance to the species problem, it was also Cohn, of course, whose methods and then recognition introduced Robert Koch into the mainstream of German medical and scientific life.[21] Cohn was determined to bring taxonomic order to the bacterial realm and to create a general science where to date only isolated, incomplete, and often inconsistent data existed. Not only were bacteria, given their small size and apparent simplicity, exceedingly difficult to distinguish from one another, but many observers felt that their form was unusually inconstant. Pleomorphism seemed a characteristic feature of these small organisms. This orientation was only compounded by the enthusiasms of the early Darwinian years, leading physicians and naturalists concluded that bacteria were subject to frequent transmutation. An influential Munich tradition, centered on the botanist Carl von Nägeli, insisted on the non-specificity of bacterial form.[22] Furthermore, Pasteur's remarkable studies of experimentally induced changed virulence in microorganisms cast continuing doubt on the physiological if not the morphological stability of the bacterial species. There is little wonder, then, that bacterial taxonomy in the 1860s was in a state of confusion and long remained so, that it was a moot point whether one could properly speak of stable or distinct bacterial species, or that a skilled naturalist such as Cohn sought means to correct the situation.

---

[20] *Ibid*, p. 373

[21] See Gerald L Geison, "Cohn, Ferdinand Julius," *Dictionary of Scientific Biography*, 3. 336–41, Brigitte Hoppe, "Die Biologie der Mikroorganismen von F J Cohn (1828–1898)—Entwicklung aus Forschung uber mikroskopische Pflanzen und Tiere," *Sudhoffs Archiv*, 1983, 67 158–89

Cohn took as his starting point a seemingly obvious proposition: bacteria are living organisms and therefore exhibit a host of properties other than mere form. Many of these chemical, behavioral, and other properties, could they but be reliably and systematically determined, would doubtlessly prove useful in bacterial taxonomy. Like Pasteur, Cohn sought to add a physiological dimension to general microbiology. In particular, he required that much more careful attention be paid to matters such as nutritive requirements, growth and reproductive patterns, fermentive behavior, and virtually any bacterial action that revealed distinctive chemical properties. Cohn thus inaugurated a movement to capture the biology of microorganisms (as revealed programmatically by the title of his Institute's journal), and Koch was an early and enthusiastic recruit.[23]

To be sure, in 1883–84 the study of microbial physiology remained at the simplest possible level. Differential staining with synthetic dyes, implicit in which is an expectation of exquisite chemical mating, was not yet a decade old; Paul Ehrlich's imaginative exploitation of this technique better reflects the work of the next generation of bacteriologists. What Cohn, Koch, and their contemporaries could do was far simpler: they devised an ever-expanding set of physiological challenges for bacteria. These challenges included controlled culture media, assessment of changes in the media brought about by microbial activity, varied configurations of the culture apparatus, variations in the culture process itself, and changed physical conditions (temperature, light) or chemical conditions (presence or absence of oxygen or of particular chemical substances; acidic or basic media). These challenges, or tests, revealed very little or nothing regarding the intimate physiological detail of the life of microorganisms, that is, individual or group metabolic pathways. However, when properly designed and implemented, they did allow the observer to discriminate with greatly augmented confidence between morphologically very similar and sometimes otherwise indistinguishable bacteria. Culture methods thus served important taxonomic (Cohn) and diagnostic (Koch) needs. No one, certainly, realized this better than Koch

---

[22] See Bulloch, *History of Bacteriology*, pp 171–203, Löffler, *Vorlesungen über die geschichtliche Entwicklung der Lehre von den Bacterien*, pp 115–63 On the remarkable and sustained division between the Munich perception of bacteria (non-specificity) and that of Koch's group in Berlin (specificity), see Pauline Mazumdar, "Karl Landsteiner and the Problem of Species, 1838–1968" (Ph.D diss, The Johns Hopkins University, 1976)

[23] *Beitrage zur Biologie der Pflanzen*, vol. 1ff (1872) The early Pasteur also held firmly to physiological specificity but, as his extraordinary researches on changing virulence advanced, he became more receptive to the idea of microbial plasticity See Mazumdar, "Karl Landsteiner," p 119 Recently, M Penn and M Dworkin have raised the question of whether Koch's development of Cohn's views and the rigorous exploitation of pure-culture methods have not, in fact, distracted attention from perhaps the true founder of a genuine "biological" view of microorganisms, Sergei N Winogradsky (Penn and Dworkin, "Robert Koch and two visions of microbiology," *Bacteriol Rev*, 1976, *40* 276–83) Especially after 1889, Winogradsky explored bacterial interactions and soil-bacteria relations, these studies led to his decisive discovery of the role of microorganisms in nitrification. Winogradsky, too, opposed the simple formulation of pleomorphism, but he was extremely alert to bacterial variation His "vision" of bacteriology thus emphasized not species identification but microbial diversity and the bacterial economy and its changing needs, Koch's "vision" was that of the limited medical microbiologist who required onlv secure identification of a pathogen as the basis of his science Whatever the utility of these oversimplifications (which Penn and Dworkin derive largely from Selman A. Waksman's flattering account of Winogradsky [*Sergei N Winogradsky, His Life and Work The Story of a Great Bacteriologist* (New Brunswick, New Jersey Rutgers University Press, 1953)]), the authors point up the need for much closer historical study of the development of non-medical microbiology Koch, it may be observed, understood well the necessary limitations, and great advantage, of pure-culture practices, especially for medical diagnosis He was also aware of microbial variation, but in his most celebrated studies, including that of Asiatic cholera, the initial and fundamental medical purpose of the inquiry was not lost, namely, to seek an organism (whatever the nature of its variants) that existed in a specifiable set of associations with a given disease See also H A. Lechevalier and Morris Solotorovsky, *Three Centuries of Microbiology* (New York McGraw-Hill, 1965), pp 260–79, and the judicious remarks by Carl Flugge offered at the onset of the first expansive period of microbiology "Untersuchung der Fermente, Mikroorganismen und Desinfectionsmittel," in *Lehrbuch der hygienischen Untersuchungsmethoden* (Leipzig Veit, 1881), pp 436–76

Koch was also fortunate. His announcement of the isolation of the comma bacillus in February 1884 was not the first description of a vibrio. It was, however, the first compelling statement concerning the medical and epidemiological significance of an individual member of this group of bacteria. It is now well known that the cholera vibrio was seen and first described in print by the Florentine microscopical anatomist Filippo Pacini in 1854. Examining cholera stools and pathological specimens from the small intestine, Pacini clearly characterized the cholera "vibrion" (his term) and also gave a remarkable account of the fundamental cholera process (disturbance of the gut wall leads to massive water loss, dehydration then becoming the cause of the disease's systemic symptoms).[24] In recognition of this work, Koch's comma bacillus is today known officially as *Vibrio cholerae* Pacini 1854. It is quite likely that Koch, too, saw the cholera vibrio while working in a hospital during the Hamburg epidemic of 1866, and no doubt other microscopists and pathologists saw the microbe before Koch's announcement of February 1884.

What, then, is in a "discovery"? Obviously, the act of seeing the cholera vibrio was no novelty in 1884. And the association of this microbe with Asiatic cholera had also been made long before, and perhaps repeatedly. What Koch and his associates did, of course, was to see once again, but then go on to build, via rigorous experimental work and with the aid of new observations and rudimentary epidemiological analysis, a strong case for the causal role of the vibrio. Once again, they added an argument based on

---

[24] See Pietro Franceschini, "La scoperta del bacillo del colera Firenze 29 agosto 1854," *Physis,* 1976, *18* 349–65

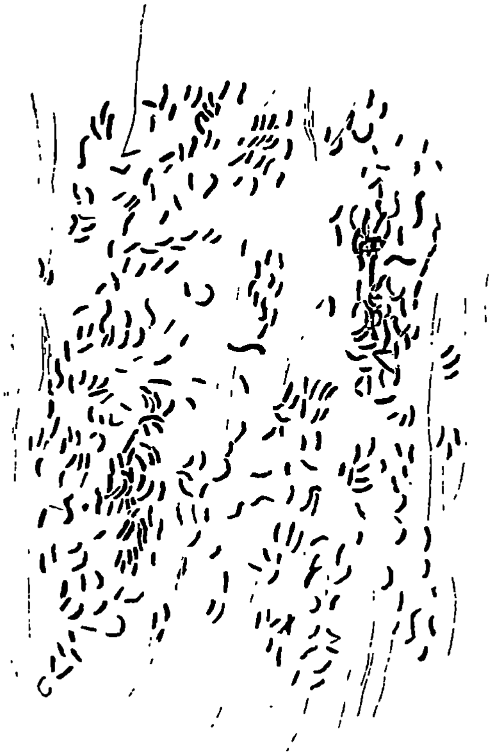


Fig 5. Pure culture of cholera evacuations from soiled clothing (600×) After two days' culture, there has been a great increase in the number of the distinctive comma-shaped bacilli and some have joined to form prominent S-shaped configurations (Koch et al., "Die Conferenz zur Erörterung der Cholerafrage," p 501.)

necessity to that drawn from sufficiency; the distinction is that between discovery of the vibrio's existence in the choleric body and the proof of the role of this vibrio in bringing about a case or cases of this particular disease.

In 1884 and soon thereafter other vibrios were isolated; some were assigned (erroneously) to Asiatic cholera, others (presumptively) to cholera-like diseases, and some to no disease at all. Between 1884 and the century's end the subject was in turmoil. The introduction of a crude serological test for the cholera vibrio in the 1890s conferred greater diagnostic confidence in uncertain cases of disease but, given the character of the family Vibrionaceae and many serotypes of the cholera vibrio, only one of which (serotype 01) is pathogenic for Asiatic cholera, the situation long remained confusing. Again, Koch was fortunate, for in February 1884, he and his co-workers had isolated not simply a cholera-associated vibrio but what was at that early moment *the* vibrio. Within the year they and others found themselves faced with the task of defending, or attacking, the singular importance of this particular form or "species" of vibrio, and this without what in the late twentieth century is deemed the essential tool for identification, chemical and immunological specificity.[25]

Amid the welter of intestinal bacteria seen in Calcutta, the cholera vibrio stood out clearly. Koch noted its gently curved form (whence the designation "comma" bacillus) and blunt but rounded ends.[26] The comma bacillus was somewhat smaller (1.5 microns) than the tubercle bacillus (2.5–3.5 microns). It was motile and formed curious aggregates: paired bacilli often created S-figures, and long, wavelike chains also appeared. More important was the fact that the comma bacillus produced distinctive cultures on nutritive gelatin. Colonies of the bacillus were clear and sharply demarcated. They gave the appearance of being formed of small fragments of glass; no other bacteria seen exhibited this trait. The colonies gradually liquified the gelatin. In hollowed-out slides, the comma bacillus appeared only at the margin of the drop of nutritive liquid. The bacillus was very sensitive to acidic media and to desiccation (brief exposure to drying conditions killed the germ). The comma bacillus stained well with certain aniline dyes (a trait widely shared with other bacteria), and it did not, so far as close study could reveal, form spores, a marked contrast to the behavior of the causal agents in two of Koch's earlier successes, anthrax and tuberculosis. Lastly, transfers through pure cultures gave no hint that the comma bacillus ever became unlike itself—there was no evidence of pleomorphism (such evidence later became available), and there was every assurance of specific stability and identity. Obviously, one "physiological" trait of the comma bacillus was that it induced a specific disease. This fact, however, which announced specific pathogenicity, might properly be introduced only after the event, that is, once a causal relationship had been established.

Successful transmission of cholera to animals would certainly have satisfied the causal demands of most observers As it was, Koch could point to the existence of a distinct pathogenic microbe and establish an argument on the basis of the presence or absence of that microbe, a compelling if not airtight argument. However, another sign pointed to the involvement of the comma bacillus in cholera. Koch noted the constant conjunction of a highly

---

[25] Specificity remained at the center of the confusion, the dispute reaching a peak in the mid-1890s in the exchanges between Max von Gruber and Richard Pfeiffer see Mazumdar, "Karl Landsteiner," p 174, also Hans Zinsser, *Infection and Resistance* (New York Macmillan, 1917), pp 87–90 A brief description of modern laboratory diagnostic procedures is given by Albert Balows et al, "The isolation and identification of Vibrio cholerae· a review," *Health Lab Sci.,* 1971, *8* 167–74 For a roster and key to the species of *Vibrio,* see R S Breed et al, *Bergey's Manual of Determinative Bacteriology,* 6th ed (Baltimore Williams and Wilkins, 1948), pp 192–207. See also N F Pierce, "Cholera," in *Tropical and Geographical Medicine,* ed K S Warren and A. A. F Mahmoud (New York McGraw-Hill, 1984), pp 703–4 Turn-of-the-century reviews, both with a strong medical orientation, include Robert Muir and James Ritchie, *Manual of Bacteriology* (Edinburgh and London Y J Pentland, 1899), pp. 420–30, and esp Wilhelm Kolle, "Cholera asiatica," in *Handbuch der pathogenischen Mikroorganismen,* ed Wilhelm Kolle and August Wassermann, 4 vols in 5 (Jena Gustav Fischer, 1903–4), 3 16–24, 31–47

[26] The following characterization of the comma bacillus, including Koch's designation, a "comma-like" bacillus, appears in the report of 2 February 1884 Koch, *Werke,* 2(1) 13–17

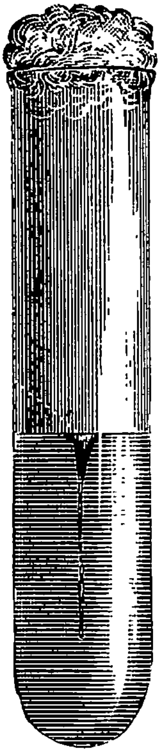


Fig 6 Stab culture of comma bacilli A characteristic funnel-shaped pure culture has formed, soon the bacilli will start to consume the nutrient gelatin, which latter will then lose shape in an again distinctive manner (Koch et al, "Die Conferenz zur Erorterung der Cholerafrage," p 502.)

localized intestinal pathology and the presence of the comma bacillus in this affected part and its customary absence from other parts of the body. There was, moreover, a strong analogy between cholera and certain other infectious diseases to which a bacterial cause had been assigned. The abundance of the bacterium followed closely the course of the disease. At the onset of cholera, the stool retained a fecal appearance and smell and relatively few comma bacilli were detected in the small intestine. Once, however, the dangerous rice-water stage had been reached, the victim passed only a voluminous and largely colorless and odorless liquid. Very often, these rice-water discharges or material collected from the intestinal lumen constituted an almost pure culture of the vibrio. Recovery from cholera entailed the gradual return of normal stools, diminution and then disappearance of the comma bacillus, and a restoration of the normal intestinal flora.[27]

---

[27] *Ibid*, pp 15–16

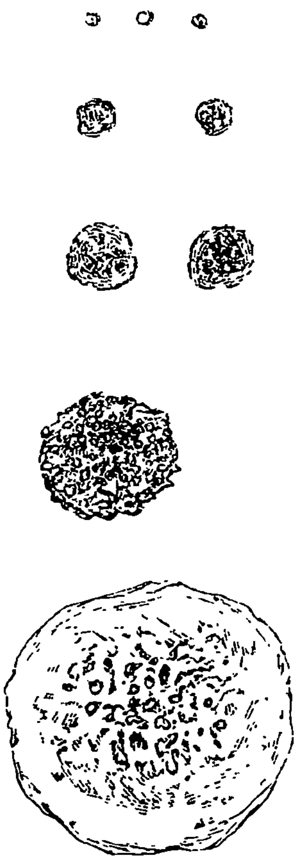


Fig. 7. Pure cultures of the comma bacillus on flat gelatin (80×) The younger colonies are at the top and the oldest at the bottom. In the course of development, a cholera culture acquires a distinctive "broken-glass" appearance, which is then lost as the gelatin liquifies (Koch et al., "Die Conferenz zur Erörterung der Cholerafrage," p 502)

Certain other human infectious diseases, Koch noted, could not be transmitted to animals (leprosy, typhoid fever), and yet, in these cases, experienced observers did not hesitate to speak of a bacterial cause. Koch did no less: "The manner of occurrence of bacteria in these diseases is such that it is imperative to regard bacteria as the cause of the disease." Naturally, he stated, "the same is true for cholera bacteria."[28] Manner of occurrence meant, in the case of cholera, the constant presence of bacteria and disease and the regular absence of the comma bacillus when other diseases or conditions obtained. Only the all-important experimental control of animal transmission was lacking.

---

[28] *Ibid*, p 16 Subsequent work soon showed that the typhoid bacillus is easily inoculated in animals and that armadillos and monkeys shelter leprosy or a leprosy-like disease

Even here, however, there was the suggestion of an experimental situation, one to be found among the population of the city of Calcutta. Calcuttans outside the city center were accustomed to taking their water from small ponds called tanks. Their houses crowded around these tanks. Tanks provided water for drinking and tank water was used for bathing, washing clothes, and cooking. It was often splendidly fouled water; latrines stood around the tank, with the ground sloping into the tank, and during epidemics, cholera-soiled clothing also found its way into the tank. Calcutta experienced numerous point epidemics of cholera, and these seemed focused on the tanks. The German commissioners awaited their opportunity and when it came they rushed to assess the tank water and other local conditions.[29] In a small outbreak of cholera at Saheb-Bagan (seventeen deaths), they found cholera bacilli in the tank water. This was a quest equivalent to finding a needle in a haystack, but it was a matter of capital importance to drinking-water advocates and their opponents. The latter, both before and after the Indian expedition, demanded hard evidence: if the agent of cholera moves with drinking water, it was essential that that agent be found in drinking water. After 1884 this general claim became more specific: one must find the cholera vibrio in suspect drinking water.

Reconstructing the Saheb-Bagan epidemic, Koch traced the origin of the outbreak to the washing in the tank of the fouled clothing of the first victim. After countless vain efforts to find a microbial (or other) cause of cholera outside the human body, India seemed now to provide satisfaction. Here, it appeared, was an experiment; nature set the conditions and man himself was the experimental animal, passing and receiving, by means of wash and drinking water, a specific causal agent. Koch realized, however, that this claim verged on hyperbole and that the stringent controls required for experimental work were utterly lacking in the Saheb-Bagan incident. Nonetheless, the tank experience gave another indication, a very direct indication, that the appearance of the comma bacillus in a population induced cholera and its absence meant a cholera-free community.

III

Study of cholera at the tank at Saheb-Bagan proved to be the last original work done by the German commissioners in India. Driven home by the approaching hot season, they reached Berlin on 2 May 1884, having been in the field some eight months. Great applause but little rest greeted Koch on his return. By June 1884 cholera had crossed the Mediterranean and was spreading in Italy, Spain, and France. In Marseilles and Toulon, the epidemic was serious and received renewed attention. Straus and Roux traveled to the south of France. For a few days in early July they were joined by Koch, sent by the German government to determine whether, in fact, the French cholera was the Asiatic cholera and, if so, what might be done to prevent its spread to Germany.[30] On this trip Koch made acquaintance with the work of William Nicati and M. Rietsch, who had been able to induce a cholera-like infection in animals; by the fall of 1884 Koch had made animal experimentation a routine affair, even though the new experimental cholera seemed a far cry from cholera in its natural situation.[31] In the midst of all this activity the first Berlin Cholera Conference was held.

---

[29] Report of 4 March 1884. Koch, *Werke*, 2(1) 18–19 Pettenkofer found the exercise wholly unconvincing See his "Cholera," *Pop Sci Monthly*, 1884–85, *26* 628–29

The conference was a small affair, restricted to a handful of senior German hygienic and scientific officials. Koch reported at length and now in a systematic manner on the results of the commissioners' work in Egypt and India and on new work recently completed in Berlin.[32] He stressed anew the importance of ascertaining the physiological traits of the comma bacillus and noted especially that moist, soiled clothing provided splendid shelter for the microbe, a point of considerable importance in understanding obscure instances of long-distance transmission. He reviewed, too, the

[30] One must ask what the British were doing The answer is very little, at least at the outset of the new epidemic Their empire embraced India, and the British army had recently (September 1882) seized Egypt, two primary cholera localities Yet during the first months of the epidemic only W G Hunter delivered strong opinions on the Egyptian events he claimed that cholera was endemic to Egypt and the comma bacillus was nonexistent See the brief notice in Anon, "The official reports on the cholera epidemic in Egypt, 1883," *Practitioner,* 1884, *32* 233–40 Soon, however, Emanuel Klein (anti-Koch) and W W Cheyne (pro-Koch) entered the fray see [E Klein, H Gibbes et al], "Preliminary report on the India Cholera Commission," etc, *Brit Med J,* 1885, *1* 43–44, 248–49, 289–90, 693–95, 934–35, Anon, "Inquiry into the etiology of Asiatic cholera, report of the English Commission," *Lancet,* 1885, *2* 1017–18, W. W Cheyne, "Report on the cholera bacillus," *Brit Med J,* 1885, *1* 821–23, 877–79, 931–34, 975–77, 1027–30 Knuppel, "Die Erfahrungen des englisch-ostindischen Aerzte betreffs der Choleraatiologie besonders seit dem Jahre 1883," *Zeitschrift fur Hygiene,* 1891, *10* 367–454 If the French and Germans largely ignored English dilatoriness, they readily exchanged compliments with each other. Thus, observed Paul Boerner, the nationalistic editor of the *Deutsche medizinische Wochenschrift* "The report of the French cholera commission brings us nothing of particular interest, apart from the effort to criticize in derogatory manner the communications" made by Robert Koch in his *Berichte* (Boerner, "Der Bericht der franzosischen Cholera-Commission," *Deutsche medizinische Wochenschrift,* 1883, *9* 588) A French observer returned the favor "The great microbe hunter [Koch] has followed a completely false trail. (Will he give back his decoration?)," the parenthetical comment being a reference to Koch's medal, proudly received from the hands of the Crown Prince in recognition of his work in India (quoted in Howard-Jones, *Scientific Background of the International Sanitary Conferences,* p 51).

[31] Nicati and Rietsch, working in Marseilles during the summer epidemic of 1884, created the prospect of transmission of cholera to animals (direct injection of vibrios into the duodenum of dogs and guinea pigs) Soon it was found that neutralization of the stomach acid and peritoneal injection of narcotics (slowing or halting intestinal motility) allowed transmission by oral feeding Koch immediately appreciated the new possibilities and first reported his own work with experimental cholera in November 1884 ["Uber die Cholerabakterien," *Deutsche medizinische Wochenschrift,* 1884, *10* 728] Pure cultures, however, and microscopical inspection, not animal experimentation, offered the core of the celebrated cholera course conceived by Koch and held for medical practitioners at the Kaiserliches Gesundheitsamt Albert Johne, "Einiges uber die bacteriologischen (sogenannten Cholera-) Curse im K. Gesundheitsamt zu Berlin, uber 'Reinculturen' und den Cholera-Kommabacillus," *Deutsche Zeitschrift fur Thiermedizin,* 1885, *11* 87–107 Straus and Roux in the summer of 1884 and after working with Koch continued to doubt the adequacy of Koch's demonstrations see their "Exposé des recherches sur le choléra à Toulon," *Bulletin de l'Académie nationale de médecine,* 1884, *13* 1047–56

[32] The proceedings of the conference, including both Koch's formal report and the ensuing discussion, appeared under the title "Conferenz zur Erorterung der Cholerafrage" in the *Berliner klinische Wochenschrift,* 1884, *21* 477–83, 493–503, 509–21. Those in attendance included, in addition to Koch, Gaffky, and others, the leading sanitarians August Hirsch, Salomon Neumann, Struck (director of the Kaiserliches Gesundheitsamt), Rudolf Virchow, and Wolffhugel

causal possibilities surrounding cholera, making forceful use of the presence-absence argument. Two options had to be excluded. Since the comma bacillus demonstrably was not a normal member of the intestinal flora, it strained the imagination to grasp how a changed condition of the body, that is, the pathological processes of cholera, could unleash the massive development of an (absent) microbe. There was, secondly, no evidence that the comma bacillus was the product of the transmutation of another and perhaps widespread germ. Only one possibility remained, and Koch now drew his major conclusion in an unequivocal manner: "The cholera process and the comma bacillus stand in direct connection to one another, and I see in this relationship nothing other than that the comma bacillus causes the cholera process. The bacillus precedes the disease and it produces the disease."[33]

For the most part, Koch's auditors accepted his findings. Koch's etiological conclusion, that Asiatic cholera is caused by the comma bacillus, evoked little criticism. The new evidence was, obviously, persuasive if not overwhelming, and the scientific community had quickly grown accustomed to accepting Koch's arguments regarding new agents of disease.[34] Difficult questions remained, however.

From the summer of 1884 on, cholera research followed several directions. There was, as noted above, a spate of discoveries of new vibrios and other putative causes of cholera (the bacterium today known as *Escherischia coli* entered scientific discourse in this manner). The taxonomy and immunological behavior of these several organisms became and long remained a major interest of cholera researches. Koch, however, took little part in this research, although members of his laboratory, notably Richard Pfeiffer and August Wassermann, did. In another direction Koch gave the medical community an unfortunate lead. Both he and Gaffky insisted on a local infection (small intestine) by the cholera vibrio but explained the pathology of the disease in terms of the spread, via the bloodstream, of a cholera poison to all parts of the body. Thus, the actual damage done by cholera was not due to excessive water (and electrolyte) loss from the gut, but was due to the parenteral effect of the poison, leading to truly systemic consequences and, above all, circulatory collapse. Some predecessors and contemporaries denied this claim (which, in fact, antedated 1884), but Koch's view prevailed and, given the remarkable authority that his views rapidly obtained, appears to have directed (or, better, misdirected) study of cholera pathology for the next several generations.[35] It may be noted, however, that Koch's suggestion was just that, largely a passing comment and not the result of sustained consideration of the problem; Koch, in fact, paid scant attention to the question of cholera pathology.

---

[33] Koch, "Conferenz zur Erorterung der Cholerafrage," pp 495–96 (passage cited is on p 496)

[34] Various discussants, *ibid*, pp 510–11 This claim holds for most German observers (but especially not for all of those of the Munich school) In England, France, and elsewhere, serious doubts came to be expressed regarding the identity of the vibrio, its relation (if any) to Asiatic cholera, and much else besides Howard-Jones shows how little enthusiastic, in fact, was the initial response to the discovery of the comma bacillus (*Scientific Background of the International Sanitary Conferences*, pp 54–55, 66–68, 75, 89)

Far more interesting to him was the principal implication of his demonstration for epidemiology. Here, again, novelty is not in question: others, notably John Snow and William Budd, had years earlier proposed the spread of the disease through drinking water. This view only slowly found other advocates, even in England, and abroad it did not fare any better. Indeed, Snow's most tenacious critic, Pettenkofer, maintained the struggle into the 1890s. Pettenkofer was also Koch's great rival for authority in the broad domain of German preventive medicine, being wedded as well to a doctrinal position that, it appeared, could be not reconciled with Koch's insistence upon the direct infectivity of the comma bacillus.

At the first Berlin conference the divide between Koch and Pettenkofer became clear and entered the realm of public debate. By 1880 Pettenkofer had both amplified and simplified his ground-water theory. His concern was always to understand the epidemic behavior of infectious disease, especially cholera; his interest in individual cases and pathological processes was small. He sought, above all, to understand how a chemical agent or a microscopic germ (Pettenkofer spanned the generations on this contested issue) worked its way through the human population. A simple formula expressed the heart of his theory: $x + y$ together generate the cholera poison z, and the latter causes the disease. X represented the non-virulent form of the agent or microbe. Y was an additional and crucial factor. Pettenkofer based his reasoning on meticulous epidemiological investigations, in which the fundamental facts were local soil conditions and ground-water movements, these being correlated with the timing and incidence of disease. Pettenkofer called this the "localist" theory of epidemic disease, in which time and place were the decisive initiatory and sustaining factors. Soil and ground water were active participants in an epidemic event: their contribution was the y that made the harmless x ready to cause a deadly disease. To Pettenkofer, epidemiology posed its own and highly important questions, and these could not be abruptly resolved by the mere discovery of a supposed causal bacillus. Sometime before 1884 he remarked:

> Given that pathology finds in a person sick of typhoid or cholera the so-called typhoid or cholera germ, this would be an important and valuable discovery; still, this discovery would not resolve what is for mankind the most important question, namely, what renders a particular place at a particular time a typhoid

---

[35] The question is thoroughly ventilated by W. E van Heyningen and J R. Seal, *Cholera The American Scientific Experience, 1947–1980* (Boulder, Colorado Westview Press, 1983), esp pp 31–64 See also T. R. Hendrix, "The pathophysiology of cholera," *Bull New York Acad. Med*, 1971, *47*· 1169–80, C C J Carpenter, "Cholera diagnosis and treatment," *ibid*, 1192–1203

> —or cholera—center and what must happen in order to remove this characteristic of a given locality.[36]

Precisely what took place in the soil Pettenkofer could not say, but it was clear to him that an active pathogen did not pass directly from one person to another or, what amounted to the same thing, by means of drinking water. The epidemiological evidence appeared to require, instead, that the (potential) pathogen undergo a process of development in the soil.[37]

Koch's interpretation of cholera, obviously, contradicted this scheme. The cholera germ was *sui generis* and always potentially pathogenic; it required no development in the soil or elsewhere in order to work its harmful effects. At the Berlin conference August Hirsch and Carl Fränkel defended Pettenkofer's position. Another and particularly astute hygienist, a product of Pettenkofer's Institute, Gustav Wolffhügel, however, emphasized that Koch's discovery had changed the rules of the game. While the facts gathered by Pettenkofer retained their value, Wolffhügel realized that the interpretation of those facts would have to change: it was now obvious that the comma bacillus was real and that drinking water played at least some role in the transmission of cholera.[38] But such comments were only intimations of what was to come. While Pettenkofer accepted the comma bacillus as his x, he continued to assert the necessity of the action of y in order to create the cholera poison z. In this matter, he had no taste for parsimonious argument and after 1884 began to develop anew an exhaustive statement of his theory. This was completed in 1887; in the same year, Gaffky published the definitive report of the German cholera commission.[39] These documents disclose two very different views of the character of epidemiology and the relation of this science to the new germ theory of disease.

IV

The first year of the comma bacillus makes clear several general points regarding the development and application of the germ theory of disease. In the first place, it is evident that the quest for the microbial cause of a disease necessarily transcended simple microscopical description of new organisms. Koch, like his contemporaries, depended upon the powerful new microscopes of the 1870s (with improved optical systems and illumination, as well as oil immersion), the extraordinary expansion of microscopical techniques (above all, new stains and staining procedures), and the preparation of pure cultures, the latter a fundamental novelty. But he also insisted on a biological view of the bacterium, and this meant that attention had to be paid to all traits of the organism, not just its general form. "The cholera bacilli," he noted, "like the majority of other bacteria, will be characterized by the sum total of their properties. They can, therefore, be identified only by consideration of all of those properties that are known to us."[40] This was more than a statement. It was a challenge designed to elicit a broader conception of microscopical pathology, one that would in time lead, in addition to better diagnoses and more assured forms of sanitary intervention, to exacting study of pathological processes induced by a bacterium.

---

[36] Quoted in Carl Voit, *Max von Pettenkofer zum Gedachtniss* (Munich Bavarian Academy of Sciences, 1902), p 119

[37] Thus Pettenkofer "I may represent the local and temporal situation, the y, which emanates from the soil, only in a quite indefinite manner, it is something like a kind of nutrition or feed for the cholera germ x .. Provisionally the facts do confirm [these] notions just as y is the nutrition or feed for x, so is there for a specific germ x a specific substrate y [which assures] the formation of a specific product z, and this is the true cholera poison" (*Verbreitungsart der Cholera in Indien* [Braunschweig Viewig, 1871], pp 113, 115)

[38] Wolffhügel, 'Conferenz zur Erörterung der Cholerafrage," p 518

[39] Max von Pettenkofer, *Zum gegenwartigen Stand der Cholerafrage* (Munich and Leipzig Oldenbourg, 1887), Gaffky, in collaboration with Koch, *Bericht uber die Tatigkeit der zur Erforschung der Cholera im Jahre 1883 nach Aegypten und Indien entsandten Kommission.* Arbeiten aus dem Kaiserlichen Gesundheitsamt, no 3 (Berlin. Julius Springer, 1887)

Koch's account of the comma bacillus makes clear, too, the diversity of evidence required to construct a persuasive or causal argument. The presence of a specific bacterial pathogen in all cases of a given disease was, of course, a primary datum, but of equal or greater significance was the absence of that bacterium in cases of other diseases or among the healthy Koch knew how to exploit the presence-absence argument; he demanded necessity as well as sufficiency. His French rivals in Egypt ignored one-half of the equation and, by paying heed only to cases of cholera, missed the formidable strength of the absence argument. Further evidence was provided by culture conditions that favored or hindered growth of the pathogen, by the character of the culture produced, and by the relationship between the pathogen and the afflicted parts of a victim's body or by general or specific pathological processes and changes (which, as has been seen, in Koch's dealings with cholera produced dubious conclusions indeed). Animal experimentation was expected to provide the decisive argument, but, as noted, the comma bacillus was declared the causal agent of Asiatic cholera without the benefit of such work. Lastly, and more problematic, epidemiological data might be used to establish an association between a specific microbe and a given disease.

Also deserving of note is that, when one examines a list of pathogenic microbes isolated between 1880 and 1910, a period known as the golden age of (medical) bacteriology, one sees that the process of identification in each case was different and in some instances very different. There was no formulaic route to discovery; this was inevitable given the varied biology of the pathogens, the responses of the host, and the environmental or epidemiological conditions under which the former made contact with the latter. In the case of cholera, for example, it soon became evident that the comma bacillus demanded a constantly moist medium, whereas other dangerous bacteria could survive desiccation by forming spores Furthermore, although by the summer of 1884 a cholera-like disease could be experimentally induced in animals, that fact, because of the extraordinary experimental procedures used, had little bearing on understanding the course of the human disease and, above all, its epidemics. Koch's so-called postulates afford a convenient—perhaps too convenient—overview of how bacteriologists in the 1880s conducted their research and reasoned on their findings.[41] As Koch realized well, and Cohn, too, had argued, each microbe possessed its own identity, and this meant that relevant information regarding the relation to disease of each bacterium suspected of pathogenic action had to be gathered from parasite, host, and environmental circumstances. Only after the event, so to speak, could the argument be rendered more accessible and perhaps more compelling by arranging its elements as required by the postulates

---

[40] Koch, "Ueber die Cholerabakterien," p 725

A final point: with regard to cholera, the discovery of the comma bacillus identified the cause and also pointed to the kind of secure foundations needed for reliable understanding of the epidemiology of the disease. To be sure, epidemiologists such as Snow since the 1850s had argued, and provided strong evidence for their arguments, that cholera moved with drinking water. Koch's work reasserted this view but added the not irrelevant detail of precisely what it was that was moving and what the basic conditions of existence of this microbe happened to be. In the German setting, and elsewhere, too, where the drinking-water hypothesis had not yet captured the epidemiological establishment, the isolation of the comma bacillus and the demonstration of its connection with cholera was taken to be direct and powerful confirmation of the correctness of that hypothesis. But here the new view encountered a well-articulated, widely accepted, and very different notion of how the disease spread in the human population. In part, Pettenkofer's ground-water theory could simply absorb the comma bacillus, but from another, epidemiological, perspective, reconciliation was not easy, and to Pettenkofer it seemed quite impossible. Proof of the existence of a cholera-specific microbe did not provide immediately useful clues to the primary epidemiological datum, the distribution and epidemic behavior of the disease—that is, an explanation of why cholera broke out at a particular place and time (and spared other places or the same place at other times). These were always Pettenkofer's primary questions, and a step toward their resolution required renewed and exhaustive study of a major epidemic of cholera, and this Europe did not experience until the Hamburg-Altona outbreak of 1892–93. Between 1884 and 1893 Pettenkofer's theory continued to command assent, but then came ruin Gaffky's analysis of the Hamburg epidemic, carried out with the assistance of Koch, established in seemingly overwhelming manner the critical role of drinking water in the spread of the cholera bacillus and epidemic cholera. Between 1884 and 1893, however, it appeared that the identification of the comma bacillus had only exacerbated the longstanding contest between the ground-water and drinking-water theories. Here the issues were fundamentally epidemiological, not bacteriological, and could not be resolved in a European laboratory. But when the occasion arose, as it did in 1892–93, Gaffky and Koch showed themselves to be highly capable epidemiologists, and once again they gave new depth to our understanding of a by now very familiar disease.

---

[41] See Lester S King, "Dr Koch's postulates," *J Hist Med,* 1952, 7 350–61

WHAT'S IN A NAME? ASPIRIN AND THE AMERICAN MEDICAL ASSOCIATION*

Jan R. McTavish

In the period following the Civil War it became very clear that large numbers of American physicians were not prescribing carefully considered mixtures of drug substances, but were instead relying on ready-made concoctions formulated by someone other than themselves. It was a situation that the American Medical Association (AMA) attributed to the miserable quality of most American medical education and strove for years to correct. To the reformers, the excessive use of proprietary remedies was a question not simply of medical ignorance but of public image. If doctors prescribed trademarked and "patent" medicines, how could doctors be "distinguished from the peanut vendor of the street?"[1] The AMA believed that if physicians desired to improve their status, it behooved them to adopt a more professional attitude with respect to therapeutics and materia medica. A doctor who could prescribe an intricate mixture item-by-item seemed much more knowledgeable and trustworthy than one who ordered a ready-made medicine.[2] Supporting nostrums, even useful ones, was a form of hucksterism that increased the wealth of a few individuals to the detriment of the public at large. The sale and prescription of drugs ideally should be devoted to the humane relief of suffering, not to the pursuit of profits.

For centuries, any item of benefit in the healing arts had been thought of as a gift from nature to humanity, as property of the public domain that was held in trust by physicians and apothecaries for the good of mankind. Attempts to keep information secret or to exploit useful knowledge for personal gain (for example, by obtaining a patent for a medicine or by registering an exclusive trade name) were unethical if not immoral. So were attempts to sell such items to patients without the advice or consent of a physician.

---

*Revised version of a paper presented at the fifty-eighth annual meeting of the American Association for the History of Medicine, Durham and Chapel Hill, North Carolina, 17 May 1985 I wish to thank members of the Departments of History and the History of Science, and the curator and staff of the Wangensteen Historical Library, University of Minnesota, for their generous support.

[1] Wilhelm Bodemann, "Are the present patent and trade-mark laws of the United States, as applied to medicinal products, in conformity with common law, common sense, justice, or equity?" *Amer Drug Pharm Rec.*, 1891, *20* 190

[2] See W A. Puckner, "The nostrum from the viewpoint of the pharmacist," *JAMA*, 1906, *46* 1340–41, also J F Beery, "The proper place for proprietaries," *JAMA*, 1899, *33* 896–98

Bull Hist Med., 1987, *61* 343–366

While the American reformers did not object too much to the use of products meeting pharmacopoeial standards from such companies as Parke, Davis & Company or Squibb ("ethical" firms because they did not advertise to laymen), they did consider the prescription of nostrums and patent medicines to be at odds with the avowed ideals of the medical and pharmaceutical professions. In the eyes of the reformers, the distinction between acceptable and nonacceptable drugs lay chiefly in the degree of commercialism attached to them.

Hostetter's Bitters and Lydia Pinkham's Vegetable Compound, for example, appealed directly to the public with trademarked names and stirring rhetoric, although by the 1890s few American doctors would even consider prescribing such proprietaries.[3] Antikamnia, on the other hand, along with a significant number of other drug mixtures, had taken advantage of the increasing sophistication of American physicians to represent itself as an "ethical" medicament. Its advertisements appeared only in the pharmaceutical and medical press, with tasteful and restrained copy not noticeably different from Parke, Davis & Company's or Eli Lilly's—but the name *Antikamnia* was registered and the contents of this preparation deliberately obscured. What were doctors to do with respect to articles like this, whose commercial attributes were not always obvious?[4]

In the opinion of F. E. Stewart, M.D., Ph.G., honorary president of the American Pharmaceutical Association (which worked closely with the AMA on reform), physicians should simply refuse to have anything to do with *any* substance protected by patent, trademark, or secrecy. In this way, "the nostrum trade would soon be forced back to the lowest depths of the infernal regions from whence it came."[5] Stewart knew that most nostrums could be easily and cheaply duplicated by a competent pharmacist.

Dr. George H. Simmons, editor of the *Journal of the American Medical Association* from 1899 to 1924, however, recognized that until a better educational system improved doctors' knowledge of materia medica, the AMA and other organizations would have to provide guidelines for ethical prescribing. To do this, the AMA in 1905 formed the Council on Pharmacy and Chemistry, which examined all new products and established rules for acceptable medicines. Those medicaments complying with the rules were to be included in an annual publication, the *New and Non-Official Remedies* (*NNR*), which first appeared in 1907.[6] While the *NNR* never endorsed a product, its information helped physicians make rational choices from among the growing numbers of commercial medications

---

[3] The most enjoyable histories of the nostrum trade are those by James Harvev Young *The Toadstool Millionaires A Social History of Patent Medicines in America before Federal Regulation* (Princeton, New Jersey· Princeton University Press, 1961) and *The Medical Messiahs A Social History of Health Quackery in Twentieth-Century America* (Princeton, New Jersey Princeton University Press, 1967) See also David L Dykstra, "The medical profession and patent and proprietary medicines during the nineteenth century," *Bull Hist Med*, 1955, *29* 401–19

[4] See William C Fiedler, "Antikamnia. the story of a pseudo-ethical pharmaceutical," *Pharm Hist*, 1979, *21* 59–72 Also see the story of Fellows Hypophosphites in George H Simmons, "The commercial domination of therapeutics," *JAMA*, 1907, *48* 1645–53

[5] Frank E Stewart, response to W B Hill, "Address of welcome to delegates from the American Pharmaceutical Association," *JAMA*, 1897, *29* 356 Stewart was also very much a part of the ethical trade He had worked for Stearns Company in Detroit, and in 1898 he became chairman of the medical board of Merck & Company

Unfortunately for the reformers, at the same time that their campaign against proprietaries was making headway, a new class of factory-compounded medicines was becoming firmly established in practice: the German synthetic pharmaceuticals. These proved to be a commercial entity unlike any that had preceded them.

The coal tar drugs were usually chemicals not found in nature; the drugs could only be manufactured from the raw materials produced as by-products of coal tar distillation.[7] The major source of these materials was the German synthetic dye industry, a phenomenally successful enterprise that in the early 1880s had discovered, more or less by accident, that acetophenetidin, acetanilid, and phenyldimethylpyrazolone (Antipyrin) could easily be manufactured from dye wastes or intermediates, and that they were efficacious medicines.[8] Moreover, the German industry was accustomed to protecting all its products by patenting and trademarking them. This habit immediately removed the new medicinal synthetic chemicals from the public domain and made them private property. The patent, especially, established a virtual monopoly for the substance—a distinctly unethical practice in the traditional view But unlike the commercial concoctions of previous eras, these new drugs proved to be indispensable in therapeutics. The three mentioned are effective antipyretics and anodynes and, while they produce some serious side effects, they could neither be dismissed as improper nor replaced by something better. By the end of the nineteenth century there were a dozen or so popular synthetic remedies on the market, with more being introduced all the time.

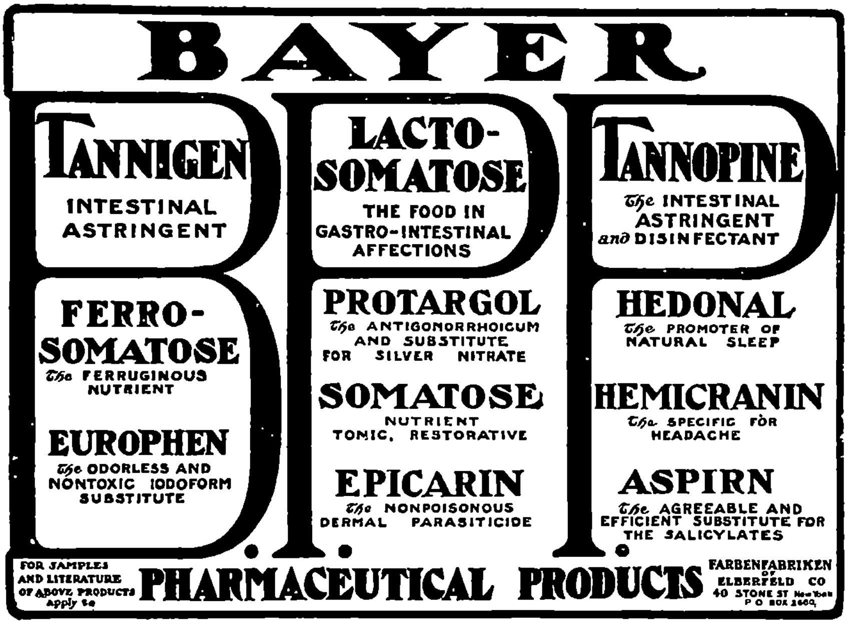
In 1899 the Farbenfabriken vormals Friedrich Bayer & Company of Elberfeld, Germany, added to the list its acetylsalicylic acid (ASA), a synthetic meant to replace salicylic acid and sodium salicylate in rheumatism therapy. Called *Aspirin* by Bayer, it proved to be very effective not only as an anti-rheumatic, but also as a general antipyretic, anti-inflammatory, and analgesic. It was even used to treat hay fever and diabetes, but, for the most part, its usefulness was confined to alleviating the pain and discomfort of colds,

---

[6] These rules included demands that all medicines submitted to the Council for examination be accompanied by accurate information as to the amount of any active ingredient and the general composition, that any poison (from a list the Council drew up) be listed on the label, and that trademark and patent numbers be provided, if applicable The Council would not accept any medicine if it was advertised to the public

[7] Coal tar—the waste product of the illuminating gas industry—was the chief source of hydrocarbons until petroleum became generally available

[8] See John Joseph Beer, *The Emergence of the German Dye Industry* (Urbana. University of Illinois Press, 1959), on drugs, see Bela Issekutz, *Die Geschichte der Arzneimittelforschung* (Budapest Akadémiai Kiadó, 1971)



BAYER

TANNIGEN
INTESTINAL ASTRINGENT

LACTO-SOMATOSE
THE FOOD IN GASTRO-INTESTINAL AFFECTIONS

TANNOPINE
The INTESTINAL ASTRINGENT and DISINFECTANT

FERRO-SOMATOSE
The FERRUGINOUS NUTRIENT

PROTARGOL
The ANTIGONORRHOICUM AND SUBSTITUTE FOR SILVER NITRATE

HEDONAL
The PROMOTER OF NATURAL SLEEP

SOMATOSE
NUTRIENT TONIC, RESTORATIVE

HEMICRANIN
The SPECIFIC FOR HEADACHE

EUROPHEN
The ODORLESS AND NONTOXIC IODOFORM SUBSTITUTE

EPICARIN
The NONPOISONOUS DERMAL PARASITICIDE

ASPIRN
The AGREEABLE AND EFFICIENT SUBSTITUTE FOR THE SALICYLATES

FOR SAMPLES AND LITERATURE OF ABOVE PRODUCTS apply to

PHARMACEUTICAL PRODUCTS

FARBENFABRIKEN OF ELBERFELD CO
40 STONE ST New York
P O BOX 2160

Fig. 1. Typical early advertisement for (misspelled) Aspirin. From *New Yorker medizinische Monatschrift,* 1901, *13.*

headaches, influenza, and other common ailments.[9] Aspirin quickly became the Bayer Company's best-selling pharmaceutical product. By 1914, it was easily the world's most widely used drug, a position that it has never relinquished. *Aspirin* is now a household word on every continent.

At the time of the drug's introduction, however, *Aspirin* was a registered trade name, and ASA was patented wherever possible. Because ASA had actually been discovered some decades earlier,[10] however, Bayer was unable to obtain a patent for this chemical in Germany, and in 1905 the company lost the patent it had owned in Great Britain since 1898; American law, on the other hand, allowed the company exclusive rights to manufacture and sell acetylsalicylic acid in the United States for a full seventeen years (from 27 February 1900 to 27 February 1917). During this period, no other firm or individual could trespass on Bayer's privileges without being hauled into court on infringement charges. While Aspirin was not the first synthetic drug to be so privileged, its unmatched popularity meant that it soon became more than just another example of the annoying novelties

[9] R T Williamson, "On the treatment of glycosuria and diabetes mellitus with Aspirin," *Brit Med J,* 1902, *2* 1946–48, Alex S Petrie, "Aspirin in hayfever," *Brit Med J,* 1906, *2* 232 Also see Martin Gross and Leon A. Greenberg, *The Salicylates A Critical Bibliographic Review* (New Haven, Connecticut Hillhouse Press, 1948), for a comprehensive list of early works on acetylsalicylic acid.

[10] Brief histories of the salicylates can be found in Henry O J Collier, "Aspirin," *Scien Amer,* 1963, *209* 96–108, and Klaus Florey, "Aspirin" in vol 5 of *Analytical Profiles of Drug Substances,* ed Klaus Florey (New York· Academic Press, 1979)

associated with modern medicine: it became a veritable symbol of the fundamental changes occurring in medical practice before World War I.

With the introduction of Aspirin, the conflict between traditional medical values and the new role of the business ethos in the healing arts reached critical levels. In the United States, where the patent laws aided Aspirin's commercial position, and where the American Medical Association was attempting to eradicate commercialism in all forms from the medical profession, this conflict was most clearly evident.

American law, unlike that of almost every other country, allowed product, as well as process, protection for chemical entities. No one else could make, sell, or import that substance until the patent expired. At that point, however, the trademark became important. Like the law in other nations, United States law intended that a trademark or trade name serve only to distinguish one maker's goods from those of another. It was not meant to extend the life of the patent beyond its allotted span. Moreover, a trade name could not itself be the name of a *thing*, since names of things were generic terms and hence public property. It was therefore prudent for owners of trademarks on patented goods to ensure that these items had generic names, too, lest the courts consider the trademarks to be the items' identifying names and place them in the public domain.[11]

With the patented synthetic pharmaceuticals that began to appear in the late 1880s and proliferate through the 1890s, however, some new problems in the area of nomenclature emerged: the trade names of patented chemicals were considerably easier to remember and pronounce than the generic terms. After seventeen years of using the name *Sulfonal*, what American physician could be expected to turn to diethylsulphondimethylmethane or even the *United States Pharmacopoeia*'s sulphonmethane? The owner of the trade name *Sulfonal* could (and did) argue, whenever someone suggested the name be made a common noun, that the public already had the proper chemical names to use for sulphonmethane from a different manufacturer.

Nor would a competitor be allowed to call his version "Brand X" of Sulfonal, but only "Brand X" of sulphonmethane, lest he infringe on the original owner's trademark rights. Physicians who were uncertain as to whether sulphonmethane was distinct from sulphonethylmethane (diethylsulfphonmethylethylmethane or Trional) would probably continue to prescribe by the brand name, just to be on the safe side. And because the law required that prescriptions for brand names be filled only with the specified brand, it compelled pharmacists (who, in fact, did know the real chemical terms) to dispense the trademarked article, often in prepackaged form. This eroded the professional status of druggists, who did not want to lose scientific control of the medicines they dispensed. Inability to substitute generics, and lack of opportunity to formulate a prescription from raw materials, denied them the exercise of their pharmaceutical skills[12] (The problem of competitive brands, however, was merely academic until World War I, because there was no synthetic drug manufacture in the United States except that undertaken by subsidiaries of the German firms. The Germans had apparently agreed not to compete with one another in the American market. In other words, there was usually only one source of a particular synthetic.)[13]

---

[11] The Singer Sewing Machine case is frequently cited as an example of what could happen When Singer's patent expired in 1895, other factories began producing sewing machines that they called *singers*, using the word to describe a particular type of sewing head. The Singer Company went to court more than once to argue that the name was not generic United States Patent Office, "Singer Manufacturing Company *v* June Manufacturing Company," *Decisions of the Commissioner of Patents and of United States Courts in Patent and Trade-mark Cases* (Washington, D C Government Printing Office, 1896), pp 687–711

At first, when the number of synthetic drugs was still quite small, the medical community did not complain much about how the German industry used trade names, reserving its criticisms for the patent medicines and nostrums of American manufacture. But as the use of synthetics grew, the problems associated with them became more apparent, and complaints about German tactics became more frequent and bitter.

A Dr James Kiernan of Chicago in 1898 pointed out that the incalculable benefits of anesthesia (American), germ theory (French), and antisepsis (British) had never had any proprietary strings attached: "When, however, German medical science is approached in this particular, a number of dark clouds appear." Robert Koch, discoverer of the tubercle bacillus, had also attempted to cure the disease by inoculation with tuberculin Koch's secrecy about the nature of this substance, said Kiernan, was "conceited, intolerant, [and] quackish." Emil von Behring's American patent on his diphtheria antitoxin was nothing short of "an attempt to blackmail suffering humanity in the interest of a foreign manufacturer." Kiernan excoriated "the growing tendency among German medical men to convert the 'Republic of Science' into a commercial oligarchy for the benefit of plutocrats at the expense of suffering humanity." Even Samuel Hahnemann, whose doctrine of homeopathy challenged orthodoxy throughout the nineteenth century, came under Kiernan's fire for commercializing his beliefs.[14]

When the American Medical and American Pharmaceutical associations reflected on the problems connected with the use of German synthetics, their concern was not just that physicians' ignorance or laziness was detracting from their professionalism or that pharmacists were denied opportunities to use their training, but that a new and powerful force was insinuating itself into the very structure of medical practice

---

[12] See the editorial in *Pharm Rev*, 1903, *21* 427

[13] The most extensive study of the American industry is Williams Haynes, *The American Chemical Industry A History*, 6 vols (New York· Van Nostrand, 1945–54) Volume 3 (*The World War I Period, 1912–1922*) discusses the German influence A more general history can be found in Ludwig Fritz Haber's *The Chemical Industry, 1900–1930 International Growth and Technological Change* (Oxford At the Clarendon Press, 1971) German factories in the United States manufactured drugs not from scratch but from imported intermediates, they also converted bulk imports into finished forms such as tablets

[14] James Kiernan, "Patenting medical discoveries," *Medicine*, 1898, *4* 801–5 Kiernan does not mention the fact that E R. Squibb, the founder of a major American drug firm, declined to patent his improvement for the manufacture of ether, deeming anesthesia too important to be monopolized in this way

In 1909 a survey of American prescription ingredients found that there were about ten items that doctors prescribed more frequently than all others.[15] These included distilled water, sodium bicarbonate, and glycerin, as well as codeine sulphate, ammonium chloride (sal ammoniac), and tincture of nux vomica (a strychnine preparation). None of these had ever been patented or had a trademark; however, also listed were two preparations that had: Phenacetin and Aspirin.[16] One can assume that this list is a reasonably accurate reflection of the drugs physicians found genuinely useful, and the fact that two of them were German synthetics illustrates the dilemma doctors faced when trying to apply the altruistic standards advanced in the *Journal of the American Medical Association* to the realities of medical practice No physician cared to give up a beneficial item just because one company held it as an absolute monopoly, a medical commercialism of the worst sort.

As doctors saw their dependence on the products of the German pharmaceutical industry increase, their concern over that industry's involvement in the commercialization of medicine grew apace, some began to see this situation as the erosion of the doctor's traditional role as final arbiter of his patient's welfare How the medical community was going to handle the synthetic drug situation was a crucial question at the turn of the century. In 1899, the upcoming eighth revision of the *United States Pharmacopoeia* (*USP*) provided the medical community an opportunity to take a stand.

Until 1906 the *USP* had no juridical authority but was simply a compendium of the most commonly used medicines which set standards for strength and purity and established the names by which the drugs officially were to be known. Every ten years a Revision Committee (consisting of physicians and pharmacists representing medical and pharmaceutical societies, schools of medicine and pharmacy, and the medical branches of the armed forces) met to decide, among other things, what items introduced into practice since the last revision qualified for inclusion in the new publication

At the time of the seventh revision (1890) there had been relatively few synthetic products, so only two or three appeared in the *USP*.[17] But by 1899 there were already about a dozen or so much-employed drugs in this class, and many more promised to become popular. The Revision Committee, if it wished to make the *Pharmacopoeia* truly representative of current therapeutics, had to determine what to do with these items. Excluding the new synthetics would deprive physicians and pharmacists of a guide to the standards for the medicines they commonly used. On the other hand, the patent and trademark status of synthetics was in conflict with the expressed ideals of the medical and pharmaceutical professions. The AMA finally resolved at its 1899 annual meeting that its delegates to the Revision Committee of 1900 advocate inclusion of synthetics "of definite and known chemical structure without regard to patents."[18] This, of course, excluded nostrums; nevertheless, some regarded the decision as bowing to commercial interests, providing free advertising and tacit endorsement of certain products.

---

[15] Edmund N Gathercoal, *The Prescription Ingredient Survey* (Chicago, Illinois American Pharmaceutical Association, 1933), p 22

[16] Phenacetin (acetophenetidin) was also a Bayer product, introduced by the company in 1887 In Germany, however, Bayer was not careful with the trade name and did not prosecute firms that used it illegally Consequently, the courts declared the name public almost immediately From this incident, Bayer learned to protect its trademarks diligently and never again let a brand name go without first putting up a fight.

[17] Salicylic acid was one, so was acetanilid

Most commentators approved, however, as did the druggist Adolf G. Vogeler:

> Even if a modicum of advantage were to accrue to the manufacturer of a given patented chemical [because of its inclusion in the *USP*], that would be of short duration. The committee on revision would not likely consider a remedy which had not been in use for at least five years; then there would be the period of perhaps two years before the Pharmacopoeia is issued and introduced, so that the period of "indorsement" might not be more than from two to eight years before the patent expired.[19]

The "indorsement" would be a minor concession; more difficulty, however, was connected with a patented drug's trade name. Vogeler nonetheless assured readers that the "perpetual monopoly" associated with trade names no longer existed because, he said, the American courts had recently declared that

> there can be no proprietary right in the name of a patented article after the expiration of the patent Hence, with the expiration of the patents, the names, antipyrin, lanolin, phenacetin, etc, will be free and part of the language. It will, therefore, be perfectly proper for the pharmacist to accept the inventors' names as generic names, introducing their proper chemical designations as synonyms, or the order may be reversed, the commercial trivial name taking its place as a synonym.[20]

Vogeler saw this as a practical yet ethical solution.

Despite the AMA's resolution concerning patented items, the Revision Committee as a whole was not willing to concede anything to the manufacturers of patented goods and refused to incorporate either trade names or substances "controlled by unlimited proprietary or patent rights" in the eighth revision.[21] Nonetheless, it was impossible to omit those synthetics that were by now indispensable to medical practice. So they *were* allowed into the *Pharmacopoeia*—but without their trade names. If a physician wished to learn the chemical constitutions of Phenacetin, Aristol, Trional, or Sulfonal, in vain would he search for them, even in the index. All four appear under their chemical names only: acetphenetidin, thymol iodide, sulphonethylmethane, sulphonmethane. (The last two names were actually invented for the *USP* and had not been commonly known.) Their trade names are not mentioned anywhere. A doctor who did not realize that Sulfonal was sulphonmethane (or who could not remember if it was sulphonmethane or sulphonethylmethane) could never hope to find it. The only synonym the *USP* provided for sulphonmethane was diethylsulphondimethylmethane! It is therefore not surprising that most doctors continued to prescribe this drug by its trade name. The situation was similar for the other three synthetics mentioned. (All four drugs, incidentally, were owned by the Bayer Company. Aspirin was not an issue in the eighth revision because it had not been in use when the Revision Committee met in 1899.) By not including trade names, the Revision Committee had hoped to strike a blow against commercialism; a strictly scientific nomenclature supposedly conceded nothing to proprietary interests.

---

[18] Adolf G Vogeler, "Patented synthetics in the Pharmacopoeia," *West Drug*, 1899, *21* 483, quoting the AMA's resolution. The AMA seems to have neglected to report on this meeting in its own journal, where only a passing reference is made to it

[19] *Ibid*, p 484

[20] *Ibid* Vogeler especially referred to Castoria, which he said became a generic by court order and would supply a precedent for future actions

[21] *Pharmacopoeia of the United States of America*, 8th decennial revision, 1900 (Philadelphia, Pennsylvania P Blakiston's Sons, 1905), preface, p xli

The eighth revision, which came out in 1905, was well received—Frank E. Stewart cited it as a triumph of ethics,[22]—but the *Druggists Circular and Chemical Gazette* was puzzled by an inconsistency between the Revision Committee's firm statement that it would not use any trade names and the fact that the *USP* did indeed include several drugs under their proprietary designations. (The journal does not identify the offenders, but saccharin was one. It appears in the index.) The *Circular* thought that the Committee had without explanation distinguished between two groups of proprietaries: those whose trade names were so commonly used as to render them public, and those whose names apparently were not. "In the former instances the names were placed in the Pharmacopoeia ... as synonyms, while in the latter they gave the manufacturer the benefit of the doubt."[23] The *Circular* went on to say that a correspondent (unnamed) who had brought this feature to the journal's attention had also pointed out another very interesting fact:

> He says that only in instances where the patents are not those which belong or have belonged to the Farbenfabriken of Elberfeld Company [i e , Bayer] have the identifying synonyms been published He assumes that the manufacturer prefers that the names of [its] patented products not be used by the Pharmacopoeia, for sufficient reasons[24]

The correspondent realized that if the names entered the public domain when the patents expired, all would be well, but with the Bayer goods he had discovered a wrinkle. "The decisions of courts upon which pharmacists have been relying have given to the public the names because the articles that bore the names had no other." The *Pharmacopoeia*, however, had actually given Aristol, Phenacetin, Trional, and Sulfonal generic names:

---

[22] Frank E. Stewart, "Professionalism in pharmacy as exemplified by the Pharmacopoeia," *Drug Circ Chem Gaz.*, 1905, *49* 309–10

[23] "Trade-names in the new Pharmacopoeia," *Drug Circ Chem Gaz*, 1905, *49* 302 See also "Phenacetine et al , and the new Pharmacopoeia," *West Drug*, 1905, *27* 554–55

[24] "Trade-names in the new Pharmacopoeia," p 302 The original owner of my copy of the eighth revision, one M G Johnson of St. Paul, had penciled in the trade names *Aristol, Sulfonal,* and *Trional* next to the drugs' official entries Apparently these were the only items he found it necessary to annotate in this fashion (They were all Bayer trademarks)

> The manufacturers may try to tell the public that phenacetin is their particular make of acetphenetidin and that they are holding nothing back from the public that the patent agreement calls for. If the public can order the stuff as acetphenetidin they may say that the public is not robbed of any ability to order it[25]

The writer was extremely suspicious of the Revision Committee's decisions, which seemed to give the Bayer Company such great advantages. "Surely pharmacists must have begun to wonder how such strange luck—and always for them good luck—follows this firm. Did they have a friend upon the committee of revision?"[26] If such a "friend" existed, it is not known who he was, but as we shall see, the Bayer Company without doubt attempted to exercise a certain amount of influence over persons who were in a position to do the company favors.

Despite his suspicions, even the *Circular*'s correspondent was fairly optimistic that the courts would see through Bayer's strategy and declare the names in question to be public property as soon as the patents expired. It is evident from the other literature of 1905–6 that the medical reformers in general expected that the nomenclature problems would work themselves out as doctors became more familiar with the official chemical terms, or as the manufacturers lost their monopolies on the trade names. In 1906, however, the New York company of Lehn and Fink challenged Bayer—whose patent on *Sulfonal* had just expired—on its rights to the name, but despite the earlier optimism, Lehn and Fink apparently did not get very far with its challenge. Until America entered World War I, any firm wishing to use a Bayer trade name had to prepare for a long and costly court battle. The company had enormous legal resources that it used to the fullest against infringers.[27]

---

[25] "Trade-names in the new Pharmacopoeia," pp 302–3

[26] *Ibid*, p 302 See also the remarks of H G Posey, "Official names for controlled synthetics," *Drug Circ Chem. Gaz*, 1905, *49* 400 He had nothing good to say about Bayer

[27] "The trade-mark right in names," *Amer Drug Pharm Rec*, 1906, *48* 315–16 What became of the lawsuit mentioned in this article is not known, no record of it exists in the legal casebooks Nevertheless, in 1907 Lehn and Fink advertised cheaper Sulfonal, Phenacetin, and Trional, along with a promise "Lehn & Fink will protect you absolutely against interference by those who claim trade-mark or patent rights" (*Deutsch-Amerikanische Apotheker-Zeitung*, (April) 1907, *28* By the end of that year, however, Lehn and Fink no longer advertised these chemicals, and instead was promoting talcum powder, toilet water, cocoa, and cold cream This leads to two interesting questions From whom was Lehn and Fink obtaining the disputed pharmaceuticals (they were not made in the United States at this time and therefore probably came from Germany)? Was a deal perhaps struck by Bayer with the American company or its supplier, to keep these companies out of the market? Nevertheless, in 1912 the AMA was still arguing that the names were indeed generic ("Phenacetin, sulphonal and trional [report of the Council on Pharmacy and Chemistry]," *JAMA*, 1912, *58* 1298–99) This implies that the 1906 suit never went to court, because if it had, a precedent-setting decision would have resulted which the AMA could have cited The trade names had entered the public domain without publicity, to be on the safe side and to avoid even the hint of a lawsuit, pharmacists were supplying the Bayer product when the prescription called for any of these items

But even more alarming than this evidence of the commercial domination of drug supplies was the growing influence of advertising on medical men. Advertising's long and disdained association with nostrums and quackery meant that anything more than a company name, a list of products, and an address was usually considered excessive by the medical professions.

Despite the real value of some of these new products, advertising was by its very nature misleading, exaggerating the benefits while ignoring or minimizing the side effects; as one commentator noted, the industry encouraged the use of these drugs "irrespective of whether such use is beneficial or harmful."[28] Moreover, the use of trade names to the exclusion of generic terms created the impression that the trade-name product was safer, more pure, more potent, more reliable than the generic—indeed, that it was altogether different from the generic one. By 1912, the drug whose advertising was giving that impression more than any other was Aspirin. Somewhat lost in the earlier fuss over the other Bayer products, Aspirin at this time came into its own as *the* symbol of the German pharmaceutical industry's activities in the United States.

In 1909 an unsuccessful attempt had been made to invalidate the American ASA patent. In August of that year, the Bayer Company brought suit against one Edward A. Kuehmsted of Illinois on the usual charges of infringement.[29] The defendant cited the outcome of the 1905 English case as a point in his favor, but the federal judge found that Bayer's claim of purity—substantiated by expert witnesses—meant that its ASA was indeed sufficiently different from any item previously identified as ASA to support the claim of novelty.[30] Therefore he found for the complainant and upheld the company's exclusive rights to the manufacture and sale of ASA. No one but Bayer could import, produce, or sell either ASA or Aspirin in the United States. An appeal was heard but the decision was not changed.

The Bayer Company realized from its experiences with Phenacetin, Aristol, and the others that it would be a good idea to keep Aspirin on firm legal footing by publicly providing it with an alternate, generic name. After 1906 Bayer began labelling this product as the *monoacetic acid ester of salicylic acid.* This designation naturally caused American physicians to be uncertain as to whether Aspirin and acetylsalicylic acid were the same thing.[31] It was not until after the war, however, that one journal plainly stated that the Bayer Company's use of this otherwise uncommon term was "a dodge to keep just ahead of the law."[32] Even though the *Journal of the American Medical Association* took great pains to point out the chemical equivalence of Aspirin and ASA, and to use the term *acetylsalicylic acid* whenever possible, the association's efforts apparently could do nothing to wean doctors away from the brand-name product.

---

[28] Martin I Wilbert, "Present status of the laws relating to patents and trade-marks," *JAMA*, 1912, *59* 835 An example of a misleading or dangerous advertisement might be one for Battle and Company of St. Louis, extolling its *Papine* "Anodyne principle of opium, the narcotic and convulsive elements being eliminated which produces no tissue changes, no cerebral excitement, no interference with digestion" (*Amer Med J*, 1904, *32*)

[29] "Aspirin patent sustained," *Pharm J*, 1909, *83* 375, 518, "Aspirin-acetylsalicylic acid patent upheld," *Drug Cir Chem Gaz*, 1909, *53* 496 The *Circular* misspelled the defendant's name as *Kuelmsted* See also "Farbenfabriken of Elberfeld Co *vs* Kuehmsted," *Federal Reporter*, 1909, *171* 887–91

[30] For the British case, see "Farbenfabriken vormals Friedrich Bayer & Co *v* Chemische Fabrik von Heyden," *Reports of Patent, Design, and Trade Mark Cases*, 1905, *22* 501–18

[31] See the letter from A.A. Ransom, "Acetylsalicylic acid and Aspirin," *JAMA*, 1912, *59* 1642, which asks if ASA and Aspirin are the same thing

The Bayer Company was the sole legal manufacturer, importer, and vendor of ASA in the United States. ASA obtained through any other channels was contraband, and Bayer was indefatigable in prosecuting infringers and smugglers. The company's legal department must have worked full time at the task—it was estimated that some two million ounces of counterfeit "Aspirin" were sold annually prior to World War I.[33] With this amount of spurious product in the country, it was not difficult for Bayer to find examples of adulterated, substandard, or downright fraudulent "Aspirin," which it could use to promote the safety and purity of its own brand. There were few sources of bona fide ASA from which smugglers could draw. Bayer's major ASA competitor in all other countries—the Chemische Fabrik von Heyden—had agreed not to challenge Aspirin in the United States if the Bayer firm would pay it one hundred thousand marks per year.[34] In fact, much of the rivalry that had characterized the German chemical industry's operations at home was absent from its dealings in the United States, in part because each company had its own lucrative portion of the market (allowed it, in effect, by the patent laws), which it controlled completely. The pharmaceutical and medical press could do little except encourage practitioners to avoid illegal purchases, for the sake of both their patients and themselves.[35]

With the outbreak of hostilities in Europe in August 1914, supplies of all German synthetic chemicals to the United States were cut off. Pharmaceutical interests saw the implications immediately: "If ... the war lasts six months or more we must provide for the manufacture of these drugs in the United States or physicians will be compelled to return to those remedies in use prior to the advent of coal-tar chemicals," warned one journal.[36] But the establishment of a local organic chemical industry was not a high-priority among American entrepreneurs, who conceded that the Germans had no equals in this field.[37] After April 1917, however, such magnanimity vanished.

---

[32] "Aspirin held not to be a trade-mark," *Drug Cir Chem Gaz*, 1919, *63*: 38

[33] So reported Herman Metz, American agent for Hochst. See E. Patch, "Report of the Committee on Drug Markets," *J Amer Pharm Assoc*, 1913, *2* 1085.

[34] Chemische Fabrik von Heyden, *100 Jahre von Heyden* (privately published, 1974), p. 6. The Heyden firm had actually been the original manufacturer of salicylic acid in the 1870s and had challenged the Bayer Company in Germany when the latter tried to obtain the ASA patent there in 1898 Bayer consequently did not obtain the patent, and Heyden became its chief rival for the ASA market. Heyden's great disadvantage, however, was that it did not have its own trade name for its product until just before World War I, when the company named its ASA *Acetylin*.

[35] See William C Alpers, "Buying synthetic remedies," *Amer Drug Pharm Rec.*, 1913, *61* 11

[36] "Supplies of German synthetic drugs," *Amer Drug Pharm Rec.*, 1914, *62* 322

[37] It seems that quite a few Americans believed, along with the Germans themselves, that the Germans were God's own chemists, and that Americans were just not "predisposed for the painstaking work that was a prerequisite for the successful manufacture of dyestuffs" (Haber, *Chemical Industry*, p 179)

German reluctance to allow the manufacture of dyes and drugs on foreign soil, which Americans had first seen as an economic decision and later as a patriotic necessity (to prevent the Allies from obtaining the intermediates with which to make explosives), Americans now viewed as a devious Teutonic plot to establish and maintain a worldwide monopoly in organic chemicals. The fact that modern munitions such as TNT came from the same intermediates as dyes and drugs was particularly telling. To some observers, it seemed that both the German industry and the German government had long considered chemical science to be a state secret, a weapon in the Kaiser's arsenal for world conquest.

The Germans were even accused of having tampered with the American government in a successful bid to keep pre-war tariff and patent laws in their favor. One Bayer official privately boasted that he had set in motion a chain of events which eventually resulted in the failure of the United States to establish a reciprocity law that would have done much to aid American industry; the lack of such a law was a constant source of irritation in pharmaceutical circles.[38]

Nor was this the only such machination involving the Bayer Company. Indeed, by the end of the war it was shown that Farbenfabriken operations in the United States had not been restricted to chemicals but had included sabotage and espionage.

Hugo Schweitzer, German-born head of American Bayer and a United States citizen, was in fact a German agent (Secret Service no. 963,192,637). He was not arrested, however, because he died, aged fifty-six, in December 1917—in mysterious circumstances, according to some, of pneumonia, according to the *New York Times*—before any real suspicions were aroused about his activities in this country.[39] In 1915, as agent for the newly formed "Chemical Exchange Association," he had purchased surplus phenol from Thomas Edison, who had intended that it go to the Allies for the manufacture of high explosives. Schweitzer paid one hundred thousand dollars cash for it, and then

> made a contract with the Heyden Chemical Works of which George Simon, a German subject, was the manager, by which the entire supply of phenol thus purchased was to be taken by the Heyden company and converted into salicylic acid and other harmless medicinal and flavoring products The arrange-

---

[38] A reciprocity law would treat foreign holders of American patents as the foreign country treated American patentees In this case, the Germans had a "working clause" requiring owners of patents to manufacture the invention in Germany or lose the rights to it. At the behest of Bayer officials, though, the Kaiser's government said it would exempt Americans from this clause (in fact, Americans held virtually no chemical patents in Germany) if the Americans would abandon attempts to pass a reciprocity law See Henry Howard, "German Patent Machinations," in Haynes, *American Chemical Industry, 3* 481

[39] See Howard W. Ambruster, *Treason's Peace German Dyes and American Dupes* (New York Beechhurst Press, 1947), p 44; Francis Patrick Garvan, "Industrial Germany her methods and their defeat," *J Indust Eng Chem.*, 1919, *11* 574–78, *New York Times*, 24 December 1917, p 9 In 1919 the *Journal of Industrial and Engineering Chemistry* (*11* 508) reported in an ambiguous article that Garvan was inclined to believe (?) that Schweitzer was alive and well and living in Mexico, still directing German propaganda. Also see "Aspirin and espionage," *JAMA*, 1919, *72* 740, John P Jones and Paul M. Hollister, *The German Secret Service in America, 1914–1918* (Boston, Massachusetts Small, Maynard, 1918)

> ment was that the Heyden works were to return to Schweitzer 1 pound of salicylic acid for each pound of phenol and keep the surplus converted product This involved a very large profit for both parties[40]

Schweitzer could justify this purchase on moral grounds (who could complain if, instead of for destruction, the phenol found a use in the healing arts?), and the transaction was perfectly legal.

Not so legal, but certainly understandable, was the attempt on the part of all the German companies with property in the United States to disguise their German ownership once war with the United States became inevitable. This was done not so much to prevent a loss of business as to prevent a possible takeover by the American government. The Bayer Company's strategies included using American citizens to front for the corporation.[41] But even an impending state of war did not distract the company from a more immediate task: the preservation of its ownership of the *Aspirin* name after the ASA patent expired on 27 February 1917. In the middle of 1916 the firm formulated a two-pronged attack. One involved an unprecedented public advertising campaign; the other, advertising directed at pharmacists and physicians.

In June 1916 *Printer's Ink,* a periodical for the advertising trade, announced that the manufacturer of Aspirin was going to try to familiarize Americans with its trademark (i.e., the name *Aspirin*). To do this, the company was taking out newspaper advertisements in cities of twenty-five thousand or more inhabitants. The copy would be unusually reticent:

> No selling talk of any kind will be used The reader will not be urged to buy anything The product will not be suggested as a remedy for any ailment The uses to which it can be put will not be mentioned. The sole object of the publicity is trade-mark identification[42]

Considering how other medicines were advertised to laymen at this time, the periodical noted, Bayer was handling the campaign with "extreme delicacy." Public advertising of a drug was a mortal sin in the eyes of the AMA, and the firm did not wish to lose the custom of the nation's doctors.

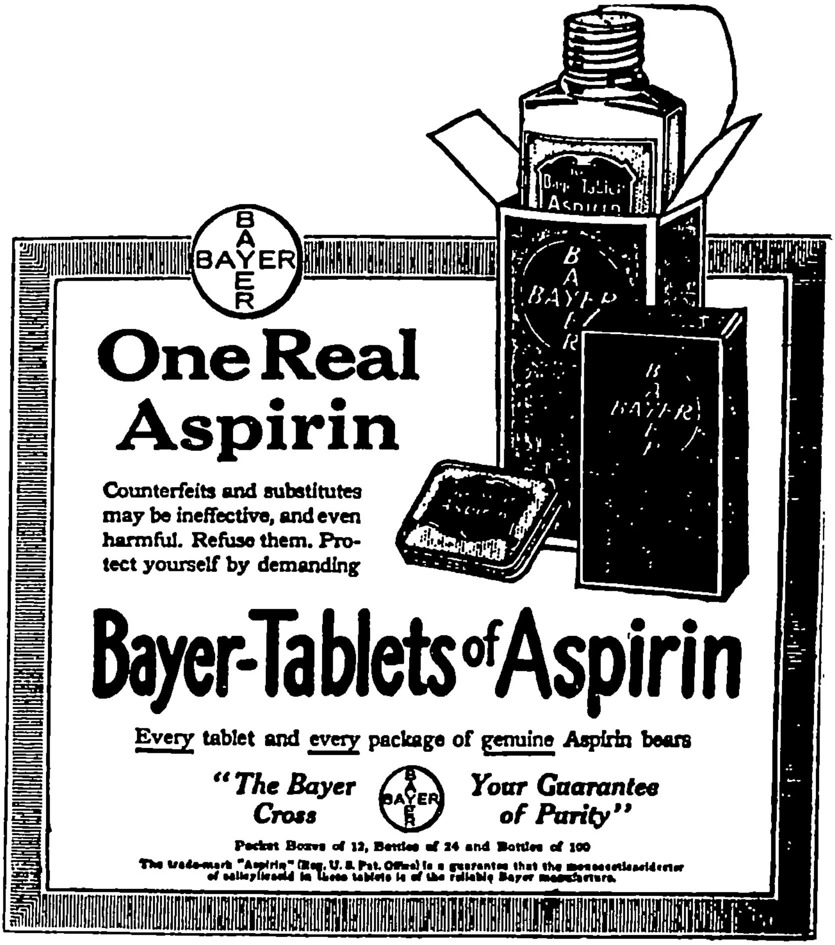
As they appeared in the *New York Times,* for example, the advertisements were indeed discreet. About two column inches in width, they came in several versions, but all consisted of the words "Bayer-Tablets of Aspirin" in large type with the Bayer Cross prominently displayed. Sometimes there was a drawing of an Aspirin bottle or tablets. Usually an accompanying statement advised readers that only *Bayer* was genuine Aspirin; imitations and substitutes were implicitly or expressly dangerous. All the advertisements also contained the following sentence: "The Trade-Mark 'Aspirin' (Reg. U.S.

---

[40] A. Mitchell Palmer and Francis P Garvan, *Aims and Purposes of the Chemical Foundation, Incorporated, and the Reasons for Its Organization* (New York De Vinne Press, 1919), pp 26–27

[41] *Ibid,* pp 29–30

[42] "Big campaign for aspirin to forestall expiration of patent," *Printer's Ink,* 1916, *95* 189.



BAYER

One Real Aspirin

Counterfeits and substitutes may be ineffective, and even harmful. Refuse them. Protect yourself by demanding

Bayer-Tablets of Aspirin

Every tablet and every package of genuine Aspirin bears

"The Bayer Cross* BAYER *Your Guarantee of Purity"

Pocket Boxes of 12, Bottles of 24 and Bottles of 100

The trade-mark "Aspirin" (Reg. U. S. Pat. Office) is a guarantee that the monoaceticacidester of salicylicacid in these tablets is of the reliable Bayer manufacture.

Fig 2 One of the advertisements to the public as it appeared in the *New York Times*, Monday, 19 February 1917, eight days before the patent was to expire

Pat. Off) is a guarantee that the monoacetic acid ester of salicylic acid in these tablets is of the reliable Bayer manufacture "[43]

That the public was very much interested in all this advertising is indicated by a newspaper article from "one of the most prominent daily papers of this country" (dated 10 February 1917 and quoted by the *American Journal of Pharmacy*), which described the impending legal battle over the name *Aspirin* as promising "lively times in pharmaceutical circles." The trade journal, interestingly, did not run the item as an example of the pervasiveness of the trademark question but as further evidence of Bayer's encroachment on the prerogatives of the medical professions·

---

[43] As examples, see the *New York Times* for Monday, 9 October 1916, p 2, and Monday, 19 February 1917, p 6 (see fig 2)

> The propaganda carried on by the patentee in the newspapers and magazines of this country in bringing this drug to the notice of the laity can have only one effect and that a most pernicious one, namely, the encouragement to self-medication on the part of the public[44]

It had never been the intention of the medical reformers, in their attempts to wrest the trade names away from the owners, to familiarize the laity with the simple names of the drugs they so commonly received from their doctors. At this time, almost all drugs could be bought without a doctor's orders. Bayer's aim with this campaign was obvious. Even if the company lost the rights to the word *Aspirin*, it hoped the advertising would convince the public to demand the Bayer brand (from their doctors, pharmacists, shop clerks) and to distrust anything else. Because such appeals to the public violated the standards of the AMA's Council on Pharmacy and Chemistry, the *NNR* dropped Bayer Aspirin in 1917.[45]

The second feature of Bayer's campaign to compensate for the loss of the patent was an assault on the medical professions. *Assault* is not a metaphor in this instance, because with this campaign the company was neither discreet nor delicate. Beginning in early 1917 Bayer took out full-page advertisements in the trade press; in at least one case these advertisements were placed in the body of the journal rather than at the beginning or end, where there was a chance they would not be noticed. The advertisements read:

> "ASPIRIN"
>
> Trade-Mark
>
> The Trade-Mark "Aspirin" (Registered U S Patent Office) is entirely separate from the patent on Acetyl Salicylic Acid and will not expire with this patent.
>
> The Trade-Mark "Aspirin" remains our exclusive property, and therefore only acetyl salicylic acid manufactured by the Bayer Co., Inc, can be marketed or sold as "Aspirin."
>
> Any violation of our trade-mark rights will be vigorously prosecuted[46]

(This is one of the rare instances in which Bayer publicly acknowledged that Aspirin was ASA.) A later full-page advertisement confirmed that the company was serious:

> "ASPIRIN"
>
> Trade-Mark Suit
>
> *Commenced*

---

[44] "Anent Aspirin," *Amer J Pharm*, 1917, *89* 129

[45] "Aspirin," *JAMA*, 1917, *68* 213

[46] This particular example and the one following were found in volume 38 of the *Deutsch-Amerikanische Apotheker-Zeitung*, 1917–18 The first appeared in March 1917 (p 5) and the second in August of that year (p 75) The advertisements were in the body of the journal, rather than in the advertising sections, indicating the Bayer Company was determined readers should see them

> We have commenced suit *in the United States Court* against the United Drug Company, of Boston, for infringement of our Trade-mark rights to the name "Aspirin."
>
> Manufacturers, wholesale and retail, druggists, etc, are warned against the use of the Trade-mark "Aspirin" in marketing or selling any acetyl salicylic acid which has not been manufactured and sold by us under the Trade-mark "Aspirin"

Some American firms, however, were not intimidated. Lehn and Fink of New York, which had previously tangled with the Bayer Company over *Sulfonal,* presented its own advertising campaign:

> ASPIRIN
>
> When the patent on "ASPIRIN" expired in February we explained our attitude to the Druggists and Doctors.
>
> We announced
>
> that we would make ASPIRIN
>
> that we would call it ASPIRIN
>
> that we would protect against suit, by the owners of the former patent, any Druggist who sold ASPIRIN (LEHN & FINK)
>
> that we would assume all the legal burdens, expenses and responsibilities in case of suit against any Druggist for selling ASPIRIN (LEHN & FINK).[47]

Other brands of "aspirin" began to appear in the trade journals, frequently with similar offers of protection against suit as long as the alleged infringement was with the dealer's brand. Anticipating the end of the patent, several American manufacturers—notably Monsanto—had set up production facilities that were ready to make ASA as soon as legally permissible, if not before.[48] The bulk product was apparently then sold to individual stores or retail chains to be made into tablets labelled with the house trademark.

The expiration of the patent came just a few weeks before the United States declared war on Germany. But until the Alien Property Custodian (APC)—an office established in August 1917—acquired control of Bayer's property, the company engaged in business as usual, perhaps anticipating that profits it made as an enemy would simply be held until the war's end, and then restored to the firm, or that the company's ownership was sufficiently "American" for the company's assets to escape confiscation. But the company and its American agents did not bargain for the vigor with which the Custodian's office pursued its goal of tracking down enemy holdings.

From 22 October 1917 until 4 March 1919 the Custodian was A. Mitchell Palmer, a respected former member of Congress. His assistant, Francis P. Garvan, became Custodian when Palmer stepped down to become United States Attorney General. Garvan was an indefatigable investigator and virulently anti-German. "Convinced that a complete, self-contained [American] chemical industry [was] vital to national prosperity, health, and security," he was not content merely to sequester enemy property until the war's end; he also undertook to prevent it from returning to German hands.[49] The Bayer Company was his most prominent target.

---

[47] This appeared in the advertising section of *Deutsch-Amerikanische Apotheker-Zeitung,* 1917–18, *38*

[48] See Haynes, *American Chemical Industry,* 3. 317 For the Monsanto connection, see Carrol A. Hochwalt, "The story of aspirin," *Chemistry,* 1957, *30* 10–14

Shortly after he took office in October 1917, Mitchell Palmer seized the Bayer Company's assets, including the patents. The Americans he named to the board of directors kept the operations going, but because not all of the advertising material from this period survived, it is difficult to determine whether this change of ownership was immediately reflected in the Aspirin copy. Certainly by the middle of 1918 Bayer Aspirin was being advertised as American-made.[50] In December 1918 the APC sold the company at auction for $5,310,000 and back taxes. The buyer was a heretofore little-known patent medicine company from Wheeling, West Virginia: Sterling Products, dealers in Cascarets, Danderine, Dodson's Liver Tone, and other proprietaries. Sterling immediately sold the dyestuffs part of Bayer for $2 5 million to the Grasselli Chemical Company of New York, and by 1919 or 1920 had formed the Winthrop Chemical Company as its ethical pharmaceutical division, responsible for the manufacture of the former Bayer products. Aspirin it kept as a separate entity, retaining the Bayer name and trademarks. The German Bayer firm, it should be emphasized, was not supposed to be involved in this transaction at all. Money paid to the APC for the American Bayer assets did not reach the former owners, a situation that the Germans, under the terms of Versailles, did not protest.

But even though Bayer was now Americanized, the company's struggle to retain the rights to the name *Aspirin* continued unabated. The advertising to the pharmacy trade was stepped up, and its nature very clearly indicates that American Bayer intended to sell Aspirin directly to the public by designing eye-catching counter displays for drug stores and by promoting the firm's reputation as the reliable manufacturer of the monoacetic acid ester of salicylic acid. Sterling claimed that the company would spend $1 million on this campaign in 1919 alone. The energy and expense of this promotion seemed well worth it, however. Wartime sales of Aspirin (most of which occurred when Bayer was still German and before any American production took place) totaled $25 million. Some 2 million pounds, equivalent to nearly 3 billion five-grain tablets, had been sold.[51] Sterling's own profits rose from an average pre-war figure of about $800,000 annually to more than $2 million in 1919.[52] Most of the increase came from Aspirin sales.

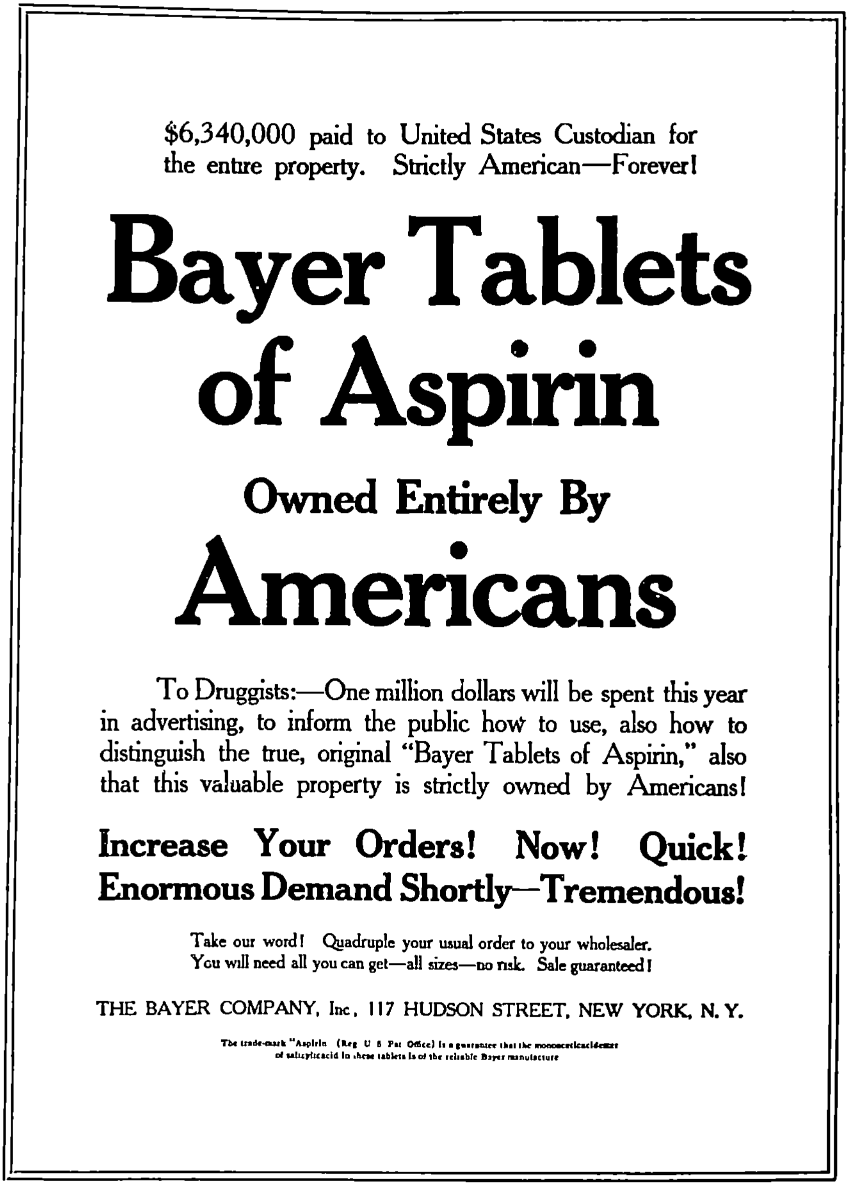
---

[49] Haynes, *American Chemical Industry*, 3 260

[50] Such an advertisement appears in the *Medical Times* for July 1918 (vol 46)

[51] Haynes, *American Chemical Industry*, 3 313–14 Haynes underestimates the amount spent on advertising

[52] *Moody's Manual of Railroad and Corporation Securities* (New York Poor's Publishing, 1919), pp 2778–79



$6,340,000 paid to United States Custodian for
the entire property. Strictly American—Forever!

Bayer Tablets of Aspirin

Owned Entirely By

Americans

To Druggists:—One million dollars will be spent this year in advertising, to inform the public how to use, also how to distinguish the true, original "Bayer Tablets of Aspirin," also that this valuable property is strictly owned by Americans!

Increase Your Orders! Now! Quick!
Enormous Demand Shortly—Tremendous!

Take our word! Quadruple your usual order to your wholesaler.
You will need all you can get—all sizes—no risk. Sale guaranteed!

THE BAYER COMPANY, Inc., 117 HUDSON STREET, NEW YORK, N. Y.

The trade-mark "Aspirin" (Reg U S Pat Office) is a guarantee that the monoaceticacidester of salicylicacid in these tablets is of the reliable Bayer manufacture

Fig 3 In February 1919, two months after Sterling Products bought Bayer's property, this advertisement appeared From *Druggists Circular,* 1919, 63

In early 1917 German Bayer had selected the United Drug Company (owners of the Rexall brand) as its test case in the Aspirin trademark suit. Bayer had thought that this firm's "financial status was such that in the event of a favorable verdict, impressive damages could be collected," that "because of the wide ownership of [United's] common stock among pharmacists and physicians, the effect of a legal victory would be felt where it would be most useful."[53] The suit dragged on for four years. It is difficult to determine what effect the war had on the litigation. In an independent decision in December 1918, the United States Patent Office threw out the registration of "Aspirin" as a trademark "on the grounds that Bayer had failed to maintain the exact composition of the substance for which the trade-mark had originally been granted,"[54] but this did not seem to have much effect on the lawsuit. In April 1921 Judge Learned Hand finally came to a rather peculiar decision.

In a nineteen-page opinion, Judge Hand enjoined the United Drug Company "against using the word 'Aspirin' in correspondence, invoices, bills of lading, and the like, or upon cartons, labels, or other marking, in any sales of 'Acetyl Salicylic Acid' to manufacturing chemists, wholesale or retail druggists or physicians."[55] The defendants could, however, use *Aspirin* on packages of fifty tablets or fewer that were sold directly to consumers. Because the Bayer Company's advertising and promotions had acquainted the public only with the name *Aspirin* and not acetylsalicylic acid, the judge reasoned that the public had learned to associate only one name with the drug and should not be deprived of "the only description which [would] be understood." The trade, on the other hand, had been educated to use acetylsalicylic acid, and therefore United would be infringing if it used *Aspirin* at the wholesale level. But long before the judge's decision, manufacturers had been calling their tablets *Aspirin;* the court's opinion was generally ignored, and at present in the United States all manufacturers of acetylsalicylic acid may call their product *Aspirin* without penalty. The terms are legal synonyms.[56]

The transfer of Bayer's property to American owners and the loss of *Aspirin* as a trade name might appear to indicate that the American medical community had finally achieved its goal of a sensible drug nomenclature. Indeed, a good many of the most commonly used synthetics of the war period had been Bayer products, and so met the same fate as Aspirin. In addition, they were made on American soil under American labels, allowing the possibility of greater local control over drug manufacture. But the German presence in the American pharmaceutical industry had not yet ended.

The formation of the Interessengemeinschaft der Farbenindustrie (IG Farben) in the mid-1920s included an American subsidiary whose director,

---

[53] Haynes, *American Chemical Industry,* 3 315

[54] *Ibid*, see also *Drug Circ Chem Gaz*, 1919, *63* 38

[55] "The aspirin decision," *Drug Chem Markets,* 1921, *8* 984 (Williams Haynes, by the way, was the publisher of this periodical)

[56] But in Canada, where Sterling set up a factory as early as 1919, only Sterling's "Bayer Aspirin" is legally entitled to use the term *Aspirin.* All other ASA products must be labelled as *acetylsalicylic acid* In Canada, as in the United States, the name *Bayer* is no longer connected with the German firm. In January 1986, however, Bayer AG of Germany bought back from Sterling its rights to the Bayer trademark in the United States for all items except pharmaceuticals

William Weiss, was one of the owners of Sterling Products, Weiss was also an officer of Bayer-Semesan (Semesan was a Du Pont agricultural chemical),[57] and had met with Bayer's head, Carl Duisberg, in 1919 to arrange for the marketing of Aspirin in South America.[58] How closely Sterling and German Bayer were tied or whether the money to purchase the New York property had been supplied by the German company has never been proven one way or the other, but by the late 1930s Sterling's association with IG Farben had become an embarrassment of some magnitude. World War II finally gave the Americans the opportunity to sever all connections with the German firm.

Meanwhile Bayer Aspirin continued to annoy the American Medical Association as much as it had before World War I, although for different reasons. Sterling's dedication to advertising led the company to make claims for its product that the Council on Pharmacy and Chemistry branded as fanciful and misleading. Aspirin advertisements claimed the drug would ward off colds, cure all manner of aches and pains, and be absolutely harmless to the heart or stomach, "with the implication that such harmlessness is characteristic only of the Bayer preparation."[59] This statement sounds not unfamiliar. Unlike the advertising of twenty-five years before, however, Sterling's campaign was aimed not at physicians, who supposedly had the skills to evaluate these claims, but at the public, whose access to such drugs the AMA had always wished to restrict. The organization was unsuccessful in keeping Aspirin away from the laity. In 1944 Sterling's over-the-counter pharmaceutical sales totaled nearly $50 million; in 1985, the total was about four times that amount.[60]

CONCLUSIONS

It is unlikely that the medical uses of ASA would ever have been discovered had it not been for the existence of a research laboratory established to exploit the relationship between color chemicals and pharmaceuticals. While the synthesis of ASA is not difficult, it nevertheless requires equipment and materials not usually found in the other common locus of drug manufacture, the pharmacy shop.

The pharmaceutical laboratory itself was, of course, an offshoot of dyestuffs research, and it was as a branch of the synthetic colors industry that the new drug manufacture developed before World War I. Thus, it adopted many of the methods and techniques that the dyemakers had been using to sell their products in a highly competitive market: sales representatives, trade journal advertising, attractive trade names, and, especially, patents on an item or process whenever possible. Many of these same methods were also used to good advantage by the nostrum and proprietary remedy sellers, but by restricting its market to the pharmaceutical and medical professions, the chemical industry avoided the unseemly trappings of the nostrum trade and established itself as a member of the "ethical" fraternity. Nevertheless, that the newcomers were more committed to profits than to the traditions of the medical community can be seen in the strategies the Bayer Company developed to maintain Aspirin sales throughout the world. It anchored its promotional campaign on trademark and patent laws rather than on the real or supposed virtues of the new product, taking full advantage of the privileges of exclusivity and monopoly that such laws allowed This is especially apparent in the story of Aspirin in the United States. Here the basic commercial nature of the Bayer Company's enterprise is most clearly evident.

---

[57] Haynes, *American Chemical Industry,* 4 343

[58] Ambruster, *Treason's Peace,* p 38

[59] "The present status of Aspirin-Bayer," *JAMA,* 1935, *104* 1005–7 The quote is on p 1005

[60] The 1944 figure is cited in Edward Kremers and Georg Urdang, *Kremer's and Urdang's History of Pharmacy,* rev Glenn Sonnedecker, 4th ed (Philadelphia J B Lippincott, 1976), p 291 The 1985 figure is from Sterling Drug, *Annual Report, 1985,* p 19

American patent laws had given Bayer a complete monopoly. There was no competing brand of ASA, so American doctors, pharmacists, and patients who wished to use the drug were compelled to buy Bayer. And because Bayer Aspirin was so popular, people bought it often. Yet the company charged American customers three times what it charged buyers in Canada. In addition, before World War I Americans paid ten times more for Aspirin than Germans, for example, paid for generic ASA.[61] No amount of pressure from the medical community had any effect on the price, however.

Moreover, Bayer's advertising copy led many physicians to conclude that Aspirin was not quite the same thing as acetylsalicylic acid and that Bayer's product might not produce the side effects reported for ASA. This was a potentially dangerous situation. Was it safe, for example, for a patient who had had an allergic reaction to ASA to use Aspirin? Yet, even though seventeen years would pass before Americans could legally buy any other brand of ASA, Bayer never identified its product by the common chemical name.

Americans regarded this lack of response by Bayer to the professions' concerns as evidence of the industry's contempt for the humanistic principles traditionally held to be at the core of medical practice. In the eyes of the AMA, confirmation of Bayer's real goal (maximum profits), and a further example of the company's contempt for both practitioners and pharmacists, came with the company's decision in 1916 to advertise Aspirin directly to the public. By placing its best-selling product on the "patent" medicine market, Bayer demonstrated that the loss of professional prestige meant less than the loss of prescription sales once the patent expired.

In 1919 the new owner of the Bayer trademarks enlarged the scope of the original, rather restrained, campaign with one million dollars' worth of hard-sell advertising. The effect was immediate. As a prominent American drug manufacturer said.

---

[61] "Acetylsalicylic acid, not Aspirin," *JAMA*, 1917, *68* 201–2

> [Aspirin] is a remarkable example of what propaganda can accomplish. [Merely modified salicylic acid], it is being used for practically every ailment both by physicians and the public. If the same hysteria of propaganda were put behind Glauber's salts or most any new nontoxic synthetic coal tar product, I feel sure it would in due course of time become so great a cure all as is acetylsalicylic acid today[62]

The accusations of commercialism, greed, and corporate arrogance which the medical communities of all nations directed at the synthetic pharmaceutical industry were exacerbated by the nationalistic passions of the era preceding World War I. The Germans were naturally proud that their industry had become dominant, while the British, for example, intimated that, had the industry developed in England, a much more altruistic and humanitarian enterprise would have resulted, in which no useful drug would have been patented merely for profits' sake. Americans, too, found Bayer's commercialism to be both repugnant and peculiarly German, and they were even more critical than the British, for the Americans implied that the German drug companies were agents for Germany's political, as well as economic, aims[63] The postwar discovery of American Bayer's involvement with the German Secret Service provided evidence that this notion may not have been too farfetched.

But if the medical communities hoped that Germany's defeat and the rise of American synthetic drug manufacture would improve the relationship between the professions and the pharmaceutical industry, they were disappointed. The kinds of new drugs found worthwhile continued to be those which only a large, industrial establishment could produce. The complexity of the nomenclature compelled the use of trade names, and the expense of discovery warranted the privilege of a patent. It was impossible for physicians to become familiar with every one of the many drugs introduced each year (despite—or perhaps because of—the quantity of advertising material that accompanied them). In other words, the problems that many observers prior to the war had categorized as peculiar to German manufacturers were now seen to be the inevitable consequences of the operations of the industry, be it French, American, Swiss, or British. By the end of the war virtually all drug production—of synthetics, biologicals, or others—took place in an industrial setting Drugs were commodities similar in most respects to any other commodity. they were manufactured for profit. Their production was simply too complicated and expensive to consider giving the drugs as gifts to suffering humanity.

---

[62] Alfred R.L. Dohme, "Report of the sub-committee on acetylsalicylic acid," *Proc. Amer Drug Manuf Assoc.*, 1919, *8*· 234–35 Aspirin, of course, is not completely harmless and, among other things, has been known to damage the gastric mucosa. See Kim D Rainsford, *Aspirin and the Salicylates* (London Butterworths, 1984), pp 148–271

[63] On the situation in Britain, see Jan R McTavish, "The German Pharmaceutical Industry, 1880–1920 A Case Study of Aspirin" (Master's thesis, University of Minnesota, Minneapolis, 1986), pp 101–17 Also see Gordon Sharp, "German supermen and decadent nations or, mere technology and true science," *Pharm J*, 1916, *97* 135–36, 158–59, as an example of anti-German sentiment in Great Britain

What must not be lost sight of in examining the changes that took place in medicine as a result of the pharmaceutical industry's growth, is that in Aspirin's case the drug had (and has) real and undisputed value. No matter how frustrated or angry medical professionals became at Bayer's manipulation of them, they could not and did not deny the extraordinary versatility of this compound. But the fact that private, commercial interests, rather than medical or even public ones, had control of an essential item disturbed observers profoundly. Aspirin, more than any other substance, symbolized this uneasy alliance of scientific, economic, and humanitarian concerns This alliance, new to medical practice before World War I, indicated the course medicine would follow in the succeeding decades.

THE ORIGINS OF THE ISLAMIC HOSPITAL: MYTH AND REALITY*

Michael W. Dols

The creation of the first Islamic hospital by the ʿAbbāsid caliph Hārūn ar-Rashīd (A.D 786–809) is usually recounted as a glorious event of a golden age. The event is mentioned in most modern histories of Islamic civilization, but its veracity has not been seriously questioned until recently. There are a number of serious problems with this well-known story. The first Islamic hospital is usually presented as a simple borrowing from an earlier Christian hospital, for which there is very little historical proof. There are no surviving archives to substantiate the account of Hārūn ar-Rashīd's hospital, which is largely based on late medieval sources. Furthermore, no consideration has been given to the institutional development of the early Islamic hospital. Therefore, I would like to deal with this subject, first, by reviewing briefly the conventional wisdom concerning the initial founding of an Islamic hospital and the recent criticism of it; second, by describing the historical landscape in which this institution developed; and third, by suggesting the most likely origin of the Islamic hospital and the nature of its early evolution. This reconsideration of a venerable story is purposely based on near-contemporary sources [1]

The customary interpretation of the origin of the Islamic hospital is that Hārūn ar-Rashīd established the first such institution in Baghdad, the imperial capital. According to most historians, the inspiration for this institution was the hospital and medical school that had been founded by East Syrian Christians in Jūndī-Shāpūr, which is located in Khūzistān, during the Sassanian period (A.D. 224–651) The Sassanian king Shāhpūr I (A.D 241–71) had

---

* By a fortunate coincidence, the reputed medical activity of Jūndī-Shāpūr was the subject of investigation by a number of scholars when I began work on the early Islamic hospitals I am very grateful to Mr Peregrine Horden (All Souls College, Oxford) and Drs Lawrence Conrad and Vivian Nutton (The Wellcome Institute for the History of Medicine, London) for generously sharing their research and discussing this matter with me I have not seen, however, the manuscript of Conrad and Nutton's forthcoming publication "From Myth to History Jūndīshāpūr and Islamic Medicine" I would like to thank Dr Emilie Savage-Smith, Miss Elizabeth Rawson, and Dr Sebastian Brock for their thoughtful criticism of this article I would also like to thank the National Endowment for the Humanities for its support of this project.

[1] I have avoided any reference to the familiar seventh/thirteenth-century sources for Islamic medical history Ibn Abī Usaybiʿa, Ibn al-Qifṭī, and Barhebraeus (Abū l-Faraj Ibn al-ʿIbrī) Early and reliable information might be ferreted out of these works, but such an undertaking would raise numerous historiographical problems For the historical sources of Islamic medicine, see Manfred Ullmann, *Die Medizin im Islam,* Handbuch der Orientalistik, section 1, supplementary vol 6, part 1 (Leiden and Cologne E J Brill, 1970), pp 228–33

Bull Hist Med, 1987, *61* 367–390

created this city in the mid-third century A.D., and he had settled a large number of Roman prisoners of war there after his defeat of the emperor Valerian (A.D. 260). In addition to being a military camp, the new city was favored by the Persian king as a royal residence, and he encouraged the sciences there. After his defeat of the emperor Aurelian, he is said to have brought his bride, the daughter of Aurelian, to Jūndī-Shāpūr; she was accompanied by two Greek physicians who publicly taught Hippocratic medicine in the city. The shāh also encouraged scholars from Persia and India to reside there, and from them the Syriac-speaking physicians developed a rich fund of medical knowledge Moreover, Shāhpūr II (A D. 306–80) is credited with the foundation of an Academy with faculties of astronomy, with an observatory; theology; and medicine, with a hospital "where treatment seems to have been based solely on scientific medicine."[2]

Furthermore, the medical teachings of Alexandria along with other Greek "sciences" were transferred to the East during the sixth century through their translation by Eastern Christians into Syriac. This Hellenization[3] was centered in Edessa until A.D. 489, when the Syrian Christian School was closed and the personnel of the school fled across the border to Nisibis, just within the Sassanian Empire in northern Iraq[4] Some of these scholarly refugees were also supposedly welcomed in Jūndī-Shāpūr, where they reinforced the influence of Greek medicine. This cultural diffusion was strengthened further by the closing of the School of Athens in A.D. 529, when the teachers fled to the East and were received by Khusraw Anūshīrawān I (A.D. 531–79).[5] Admittedly, the Seven Sages were unhappy at Ctesiphon, and the shāh arranged for their return to Byzantium. Nevertheless, Khusraw aggressively patronized the arts and sciences at the Academy of Jūndī-Shāpūr, where Greek and Sanskrit works were translated into Persian and Syriac. This scholarly activity continued into the Islamic era, and the Academy's doctors were highly regarded by the Arabs Ḥārith ibn Kalada (d. A.D. 635), specifically, is supposed to have studied there, and his medical skill was recommended by the Prophet to several of his companions.

We know surprisingly little about medicine during the Umayyad period (A.D. 661–750),[6] but it is believed that when the capital was moved from

---

[2] *The Encyclopaedia of Islam,* 2d ed (Leiden and London E J Brill, 1960–) (hereafter referred to as *EI2*), s v "Gondēshāpūr" (Cl Huart-Aydin Sayılı) For a general history of Sassanian Persia, see Richard N Frye, "The Political History of Iran under the Sasanians," in *The Cambridge History of Iran,* ed W B Fisher et al , 8 vols. (Cambridge· Cambridge University Press, 1968–86), 3(1) 116–80.

[3] Sebastian Brock, "From Antagonism to Assimilation Syriac Attitudes to Greek Learning," chap 5 in his *Syriac Perspectives on Late Antiquity* (London Variorum Reprints, 1984)

[4] For a fine survey of pre-Islamic Mesopotamia, see Judah B Segal, "Mesopotamian communities from Julian to the rise of Islam," *Proc Brit Acad*, 1955, *41* 109–39 Specifically for Nisibis, see Jean M Fiey, *Nisibe, métropole syriaque orientale et ses suffragants des origines à nos jours,* in *Corpus Scriptorum Christianorum Orientalium* (hereafter referred to as *CSCO*), vol 388, Subsidia no 54 (Louvain Imprimerie Orientaliste, 1977)

[5] Alan Cameron, "The last days of the Academy at Athens," *Proc Cambridge Philol Soc*, 1969, *195* 7–29

[6] See the survey of the early translations into Arabic by Paul Kunitzch "Uber das Fruhstadium der arabischen Aneignung antiken Gutes," *Saeculum,* 1975, *26* 268–82 Kunitzch's review of the evidence, particularly the Persian terminology, largely supports Fuat Sezgin's contention that the study and translation of all the disciplines of Islamic science began in the first century of the Hejira (Fuat Sezgin, *Geschichte des arabischen Schrifttums,* 9 vols [Leiden E J Brill, 1967–84], 3 xvi).

Damascus to Baghdad, the fame of neighboring Jūndī-Shāpūr was quickly recognized. The caliph consulted the city's Christian physicians, and they were soon drawn to the court and its patronage. The most famous alumni of Jūndī-Shāpūr were the family of Ibn Bakhtīshū'. Eventually, in A.D. 787, Jibrīl ibn Bakhtīshū' (d. A.D. 828) was summoned from Jūndī-Shāpūr to Baghdad to supervise the founding of a state hospital by Hārūn ar-Rashīd, who feared the consequences of the lack of medical expertise in the capital. Thus, the tradition of Jūndī-Shāpūr became well entrenched in the heart of the 'Abbāsid Empire, and it exerted a direct influence on Islamic medicine, particularly in the organization and administration of hospitals.[7] The opinion of Cyril Elgood on these matters has been repeated uncritically by many writers: "To a very large extent the credit for the whole hospital system must be given to Persia. The hospitals of the Mohammadan period were built very largely upon the ideals and traditions of the Sāsānian hospital of Jundīshāpūr."[8]

This historical sketch of pre-Islamic medicine and its association with Jūndī-Shāpūr bristles with difficulties We do not have any Persian sources that would corroborate the claims that Jūndī-Shāpūr played a crucial role in medical history. The historiographical problems of the late Arabic sources are the thrust of Lawrence Conrad's skepticism about the origin of the Islamic hospital.[9] In particular, Vivian Nutton has shown that the story of Aurelian's daughter and the Roman settlement in Jūndī-Shāpūr is groundless.[10] There is no evidence that the academicians of the School of Edessa went to Jūndī-Shāpūr at the end of the fifth century The view that Ḥārith ibn Kalada was the progenitor of Arab medicine is largely a legend.[11] And the motivation attributed to Hārūn ar-Rashīd for founding a major hospital is hardly credible.[12] What, then, can be said with some degree of certainty about the beginnings of the Islamic hospital?

---

[7] There is a great deal of secondary literature on the medical importance of Jūndī-Shāpūr I have relied on the following Nabia Abbott, "Jūndī Shāpūr a preliminary historical sketch," an appendix to Robert McC Adams and Donald P Hansen, "Archaeological reconnaissance and soundings in Jūndī Shāhpūr," *Ars Orientalis*, 1968, 7 53–73, Aḥmed Issa ['Īsā], *Histoire des bimaristans (hôpitaux) à l'époque islamique* (Cairo Imprimerie Paul Barbey, 1928), pp 25–27; Arthur Christensen, *L'Iran sous les Sassanides* (Copenhagen Munksgaard, 1936), pp 41–43, Sezgin, *Geschichte des arabischen Schrifttums*, 3 173–75, *EI2*, s v "Gondēshāpūr", De Lacy O'Leary, *How Greek Science Passed to the Arabs* (London Routledge and Kegan Paul, 1949), pp 67–69, Irwin A. Brody, "The school of medicine at Jundishapur the birthplace of Arabic medicine," *Trans Stud. Coll Phys. Philadelphia*, 1955, ser 4, *23* 29–37, A.A. Siassi, "L'Université de Gond-i Shāpūr et l'étendue de son rayonnement," in *Mélanges d'orientalisme offerts à Henri Massé à l'occasion de son 75ème anniversaire* (Teheran University of Teheran, A.H 1342/A.D 1963), pp 366–74, Allen O Whipple, *The Role of the Nestorians and Muslims in the History of Medicine* (Princeton, New Jersey Princeton University Press, 1967), R.F Hau, "Gondeschapur eine Medizinschule aus dem 6 Jahrhundert n Chr," *Gesnerus*, 1979, *36* 98–115 For the secondary literature on the Islamic hospital, see my "Insanity in Byzantine and Islamic Medicine," *Symposium on Byzantine Medicine (1983)*, ed John Scarborough, *Dumbarton Oaks Papers*, 1985, *38* 135, n 3

[8] Cyril Elgood, *A Medical History of Persia and the Eastern Caliphate* (Cambridge Cambridge University Press, 1951), p 173, quoted in Seyyed H Nasr, "Life Sciences, Alchemy and Medicine," in Fisher et al, eds, *Cambridge History of Iran*, 4 414–15

[9] Lawrence Conrad, "The Institution of the Hospital in Medieval Islam Ideals and Realities" (typescript, 1986)

[10] Vivian Nutton, "From Galen to Alexander Aspects of Medicine and Medical Practice in Late Antiquity," in Scarborough, ed, *Symposium on Byzantine Medicine (1983)*, pp 12–13

[11] See Ullmann, *Die Medizin im Islam*, pp 19–20

A hospital may be defined as a public charitable institution that affords care to the sick over an extended period of time. Such an institution originated in Byzantium in the fourth century. There is no evidence in classical antiquity for a public charitable facility that cared for the sick poor. The hospitals that did exist were devoted to specific classes, such as slaves and soldiers. These facilities were neither charitable nor public. Medical practitioners certainly existed; they were usually Greeks who worked in their homes or shops. The closest one can come to a hospital in antiquity is the overnight care of patients in the physician's work place. In this respect, medieval doctors in Islamic society followed a similar pattern, despite the creation of hospitals. For example, we learn a good deal about Islamic medicine in Egypt from the stories of at-Tanūkhī (d. A.D. 994). A wealthy Egyptian physician named al-Qātiʿī used his large income from treating the ruler, soldiers, and ordinary patients for charitable purposes. At-Tanūkhī says that "a portion of [al-Qātiʿī's] dwelling had been turned into a sort of hospital to house poor patients, whom he would treat, supplying what they needed in the way of drugs, food, and attendance, and spending most of his earnings on this"[13] The story indicates two further points that should be emphasized about medieval Islamic medicine: hospitals were intended primarily for the poor who, for one reason or another, could not be cared for by their families, and the usual place of medical treatment was in the home, as it has remained until recent times in the Middle East.

In the fourth century, the rising population and declining economy of the eastern Roman Empire created ideal conditions for the charity of the newly tolerated Christian communities and their missionary activity. Subsequently, widespread social services were established by the Byzantine Church in alliance with the state; they provided for pilgrims and travelers, widows and orphans, the aged and the sick[14] The care of the sick has been the subject of a recent monograph by Timothy Miller.[15] Unfortunately, Miller interprets the long history of the Byzantine hospital in terms of the large, twelfth-century Pantocrator Hospital in Constantinople. Although we have the *typikon* or charter for this hospital, which stipulates the hospital's functions, it is unreasonable to assume that most earlier hospitals had similar features. Even with the *typikon,* it is quite unclear how the Pantocrator worked. For example, Miller never discusses the leprosarium that existed in the complex.[16] The Pantocrator Hospital generally obscures the diffuse and often modest nature of Byzantine charitable facilities. Fundamentally, Miller's distinction between caring and curing is not a helpful one for understanding hospitals in the medieval period; as in the Third World today, care is as important as cure.[17]

---

[12] See Boydena R. Wilson, "The Bakhtīshūʿ Their Political and Social Role under the ʿAbbasid Caliphs (A.D 750–1100)" (Ph D diss , New York University, 1974), pp 45–46

[13] Al-Muḥassin ibn ʿAlī at-Tanūkhī, *The Table-Talk of a Mesopotamian Judge*, parts 2 and 8, trans David S Margoliouth (Hyderabad, 1929–32), p 193

[14] See Demetrios Constantelos, *Byzantine Philanthropy and Social Welfare* (New Brunswick, New Jersey Rutgers University Press, 1968), Ewald Kislinger, "Kaiser Julian und die (christlichen) Xenodocheia," *BYZANTIOΣ Festschrift fur Herbert Hunger zum 70 Geburtstag*, ed W Horandner, J Koder et al (Vienna Ernst Beevar, 1984), pp 171–84

[15] Timothy S Miller, *The Birth of the Hospital in the Byzantine Empire*, n.s suppl 10, *Bulletin of the History of Medicine* (Baltimore and London The Johns Hopkins University Press, 1985)

For this reason, a medieval hospital should not be defined, as Miller does, as an institution that possessed physicians or a medical staff. The broad sense of a hospital is reflected in the imprecise Greek terminology, where *xenodocheion,* meaning a place for strangers, was used to denote an institution operated by the Church that afforded needed social services—basically food, shelter, and care—although in some instances this term was used for institutions possessing medical personnel. The Byzantine *nosokomeion,* however, did designate a place whose specific purpose was the medical care of the sick; this term could refer to a public facility or a monastic infirmary. As Miller suggests, it is likely that a local church operated a hospice (*xenon*) for the poor and for travelers that also included an infirmary (*nosokomeion*); in time, the medical services might become the hospice's dominant function, so that the terms *xenon* and *nosokomeion* both referred to a medical center.[18]

In the East, the Church assumed the same responsibility for "hospitality" and for providing similar social services. The seventh canon of the synod of the East Syrian patriarch Isaac (A.D. 410), for example, pledges to establish in all the churches a house specially designated to receive strangers and the poor.[19] The development of social services by Syriac Christians may be illustrated by the city of Edessa.[20] During a famine in A.D.

---

[16] See Alexandre Philipsborn, "ΙΕΡΟΣ ΝΟΣΟΣ und die Special-Anstalt des Pantokrator-Krankenhauses," *Byzantion,* 1963, *33* 223–30, Owsei Temkin, *The Falling Sickness A History of Epilepsy from the Greeks to the Beginnings of Modern Neurology,* 2d rev ed. (Baltimore and London The Johns Hopkins Press, 1971), p 19, Michael W Dols, "The leper in medieval Islamic society," *Speculum,* 1983, *58* 900

[17] See Peregrine Horden, "The Byzantine welfare state· image and reality," *Bull Soc. Social Hist Med,* 1985, *37* 7–10 Mr Horden kindly showed me the original, more detailed, version of this paper, which was presented at the Summer Conference of the Society for the Social History of Medicine (Oxford, May 1985) Furthermore, he has shown me his unpublished paper "Nestorians, Gondeshapur, and Islamic Medicine A Sceptical Comment" (1983) on hospitals and medical schools in the Byzantine and Islamic empires, centering on the issue of Jūndī-Shāpūr

[18] Miller, *Birth of the Hospital,* pp 23–29

[19] Jean-Baptiste Chabot, ed. and trans , *"Synodicon Orientale" ou recueil de synodes nestoriens,* in *Notices et extraits des manuscrits de la Bibliothèque Nationale,* 1902, *37* 25, 265 Canon eleven of the Synod of Mar Ezechiel (A.D 576) anathematizes those who prevent legacies from being given to the Church, including *xenodocheia* (Chabot, *"Synodicon Orientale,"* p 119), and canon six of the synod of Jesuyahb I (A.D 585) is directed against Christians who steal from the Church, again including *xenodocheia* (Chabot, *"Synodicon Orientale,"* p 142) Concerning the Monophysite Church, similar regulations were enacted, see the sixth-century canons of John, Bishop of Tellā, in Arthur Voöbus, ed. and trans , *The Synodicon in the West Syrian Tradition, CSCO,* vols 367–370, Scriptores Syri nos 161–64 (Louvain. Imprimerie Orientaliste, 1975–76), 367 151–52, 368 147

[20] Segal, "Mesopotamian communities," p 117

373, Ephraim the Syrian set up a hospice with three hundred beds for the poor and homeless. About fifty years later, a hospital (*nosokomeion*) existed in the city.[21] Rabbūla, bishop of the city from about A.D. 411 to 435, founded permanent hospitals, one for men and one for women, and he endowed them with an annual income of about one thousand *denarii*. The beds were reportedly soft and clean, and the bishop used ascetics of both sexes as attendants. He saw it as his highest duty to supervise the hospices: to visit the sick, to respect them, and to greet them with a kiss.[22] In the middle of the fifth century, Bishop Nona built a hospital alongside his monastery as well as a leper house, which survived into the later Middle Ages.[23]

The care of the sick in the Sassanian Empire is also attested to in the saints' lives and in the histories of the Syriac monasteries. One exceptional saint in the Persian Acts of the Martyrs built a house where he gathered together the sick and distressed to care for them, and he created a fund to cover the cost of the patients and the fees of the doctors[24] Usually the sick were the collective concern of monasteries, where special rooms were built for their care, and some monks found their calling in ministering to them exclusively.[25]

Thus, in addition to offering shelter to travelers and pilgrims, the Eastern Church also provided for the poor (especially during famines and epidemics), for the infirm, and for students There was not in the East, however, an institutional specialization of charitable activity comparable to that which developed in Byzantium. The *xenodocheion* was implanted and became a significant feature of the Eastern Church. As a Greek loanword into Syriac, it is a good indication of the Hellenization of the Eastern Church. The Syriac derivative of *xenodocheion*, however, came to mean in Mesopotamia and Persia an institution primarily for the care of the sick, it was, therefore, generally equivalent to the Byzantine *xenon* or *nosokomeion*

An important passage in this regard occurs in the so-called Chronicle of Zachariah the Rhetor. An anonymous Syriac author used Zachariah's chronicle for part of his history, which was completed in A.D. 569, probably in Amida. The last book is incomplete but deals with the years A.D. 553 to 556. At the very end of the extant manuscript occurs the following passage, it describes Khusraw Anūshīrawān's diet and his physicians, especially Joseph (Yūsuf), whom the king had also appointed as patriarch (A.D. 552–66/7):[26]

---

[21] See Kislinger, "Kaiser Julian," p 176, n 46, Judah B Segal, *Edessa, "The Blessed City"* (Oxford Oxford University Press, 1970), p 148

[22] Arthur Voobus, "Einiges uber die karitative Tatigkeit des syrischen Monchtums," *Contrib Baltic Univ*, [Pinneberg], 1947, *51* 22

[23] See Dols, "Leper," pp 900, 905

[24] *Auszuge aus syrischen Akten persischer Martyrer*, trans Georg Hoffmann (Leipzig, 1880), p 50

[25] See Voobus, "Einiges uber die karitative Tatigkeit," pp 19–24, *idem, History of Asceticism in the Syrian Orient A Contribution to the History of Culture in the Near East, CSCO*, vols 184 and 197, Subsidia nos 14 and 17 (Louvain Imprimerie Orientaliste, 1958, 1960), vol 17, chap 11

> Moreover, Joseph also, the Catholicos of the Christians, has a privileged position at the king's court and is close to him because he is a doctor. He sits at the foremost bench in [the king's] presence next in rank to the head of the magi, and he receives from him anything that he asks. Because of [the king's] compassion towards captives and the holy men, on the advice of the Christian doctors who are close to him, he has now, departing from custom, made a hospital [*xenodocheion*], and he has given one hundred mules and fifty camels, carrying provisions from the royal stores, twelve physicians, and whatever is needed is provided.[27]

It comes as no surprise that the Sassanian king was surrounded by foreign physicians or that the Catholicos was a doctor.[28] What is significant is the strong implication that Persian kings did not customarily establish hospitals in their empire—and we have no evidence that they did—but here the king clearly supported the Christian foundation.[29] The passage is also important for defining the Syriac *xenodocheion* as a medical institution, that is, an institution with medical personnel.

What do we know about Syriac medicine in the Sassanian era? Generally, from about A.D. 500, Greek medical texts were being translated into Syriac. These texts were derived from the books that were still being studied at the ancient school of Alexandria.[30] These selected works were given a specific arrangement by the Eastern Christians, and the arrangement was significant because the later Islamic curriculum for medical education was largely taken from this Syriac program of set texts. It was known as the

---

[26] William G. Young, *Patriarch, Shah, and Caliph* (Rawalpindi: Christian Study Centre, 1974), p. 73.

[27] *Historia Ecclesiastica Zachariae Rhetori, CSCO,* Scriptores Syri, ser. 2, 2 vols., ed. Ernst W. Brooks (Paris: J. Gabalda, 1919–21), 2: xii, 7 ad fin. = *The Syriac Chronicle Known as That of Zachariah of Mitylene,* trans. F. J. Hamilton and Ernst W. Brooks (London, 1899), pp. 331–32. I am very grateful for the close analysis of this passage by Andrew Palmer. Incidentally, Zachariah also mentions a hospital in an earlier passage (*Syriac Chronicle,* p. 207): "And Akhs'noyo of Hierapolis had been sent into exile at Gangra, and he was imprisoned over the kitchen in the hospital there, and was suffocated by the smoke, as he states in his epistle, and at last he died."

[28] See R. C. Blockley, "Doctors as diplomats in the sixth century A.D.," *Florilegium,* Carleton University, 1980, *2*: 94–96; however, Blockley's concluding remarks (p. 96) about Tribunus, his hospital, and Jūndī-Shāpūr are inexplicable.

[29] Palmer comments (in a personal communication): "The absence of the word 'his' (in the phrase 'departing from custom') seems to indicate that it was neither this nor any other king's custom in Persia to build such hospitals. ... If it implies anything, it is that it was not."

[30] For Syriac medical texts, see Rainer Degen, "Ein Corpus Medicorum Syriacorum," *Medizinhistorisches J.,* 1972, *7*: 114–22, and *idem,* "Galen im Syrischen: Eine Ubersicht uber die syrische Uberlieferung der Werke Galens" in *Galen: Problems and Prospects,* ed. Vivian Nutton (London: Wellcome Institute for the History of Medicine, 1981), pp. 131–66. On this topic generally, Max Meyerhof's article is still valuable: "Von Alexandrien nach Baghdad. Ein Beitrag zur Geschichte des philosophischen und medizinischen Unterrichts bei den Arabern," *Sitzungsberichte der preussischen Akademie der Wissenschaften in Berlin, phil.-hist. Kl.,* 1930, *23*: 389–429; cf. Owsei Temkin's review in *Gnomon,* 1933, *9*: 45–51, and Gotthard Strohmaier's criticism, "'Von Alexandrien nach Baghdad': eine fiktive Schultradition," in *Aristoteles, Werk und Wirkung: Paul Moraux gewidmet,* ed. Jürgen Wiesner, 2 vols. (Berlin and New York: Walter de Gruyter, 1985–87), 2: 380–89.

Summaria Alexandrinorum or *Jawāmiʿ al-Iskandarānīyīn* and was comprised mainly of selected works of Galen.[31] These translations were related to the earlier and contemporary translations of Greek philosophical works into Syriac. Greek philosophy became an important part of the educational program in the seminaries of Eastern Christianity; Greek logic, particularly, was considered to be essential for the study of theology.[32] In this context, Greek medicine was an ancillary subject and was studied as a useful "science." Medical texts in Syriac existed and were surely read, if we can judge from the large number of East Syrian doctors, both lay and clerical. The cleric, even the saint, employed the methods of a good doctor, or knew when to refer the sick to a professional practitioner.[33]

The only historical evidence for the association between a Christian seminary where medical texts were studied and a *xenodocheion* is at the School of Nisibis. The School was expanded in the early sixth century with the help of ʿQashwī, an influential physician at the Sassanian court. The director of the School, Abraham de-Bēt Rabbān, "first built for [the students] a hospice [*xenodocheion*] in order that they would not need to roam in the town and be plundered and dishonored."[34] The director also established two bath houses, one for the brothers and the other for the upkeep of the infirmary. He supervised the new unit himself.[35] In A.D. 590 a later director of the School, Ḥenānā, supplemented the existing statutes of the seminary with the following canons:

> The first canon The *ʾaksenādākrā* [= *xenodokos,* "the curator of a hospital"] who is in the *xenodocheion* [*ʾaksānādāukīn*] of the school shall carefully provide for the brothers that have become sick, and nothing shall be lacking in the (things) required for their nourishment and their cure, and further he shall not steal or be unfaithful in something that has been entrusted to him in order to manage it. Without the *malpānā* ["doctor"] of the school he shall not arrange income and expenses of the school If it is found that he does not do one of these that are written in these canons, everything that he has defrauded or concealed, shall be taken from him. He shall give as punishment money, 50

---

[31] Michael W Dols, *Medieval Islamic Medicine Ibn Ridwān's Treatise "On the Prevention of Bodily Ills in Egypt"* (Berkeley and Los Angeles University of California Press, 1984), pp 27–29

[32] For the parallel transmission of the canon of preliminary works of Aristotelian logic that were also derived from Alexandria, see Fritz-W Zimmermann, trans, *Al-Farabi's Commentary and Short Treatise on Aristotle's "De Interpretatione"* (London British Academy, 1981), pp ciii–civ

[33] Gilbert Dagron, "Le Saint, le savant, l'astrologue," in *Hagiographie, Cultures et Sociétés, IVe-XIIe siècles Actes du Colloque organisé à Nanterre et à Paris (2–5 Mai 1979)* (Paris, 1981), pp 143–56, which is reprinted in his *La romanité chrétienne en Orient Héritages et mutations* (London Variorum Reprints, 1984), chap 4, p 146, Dagron points out (p 144) that the authors of the collections of *Questions and Answers* "sought very consciously to delimit the role of the saint, the definition of the miracle and the validity of the hagiographical genre" See also Dols, "Insanity in Byzantine and Islamic Medicine," pp 144–45

[34] Arthur Voobus, *History of the School of Nisibis, CSCO,* vol 266, Subsidia no 26 (Louvain Imprimerie Orientaliste, 1965), pp 145–46 This passage quoted by Voobus may be clarified by the canon of Rabbūla (Voobus, *Synodicon in the West Syrian Tradition,* 367 158, 368 153 "The brothers shall not leave their monasteries under the pretext of sicknesses and roam in the towns and villages")

[35] Voobus, *History of the School of Nisibis,* pp 145–46

> *'estirēn* for the *xenodocheion* Then he shall leave the school and the town in shame...
>
> The nineteenth The brothers who have come because of instruction, are not allowed to live together with the physicians in order that the books of the craft of the world should not be read with the books of the holiness in one light.
>
> The twentieth. The brothers who have left the scholarship and have departed for the (discipline of) medicine—if there is no good testimony about them, they are not allowed to hear in the school, except, however, the physicians, inhabitants of the town[36]

The additional canons of Ḥenānā dealing with medicine may indicate the development of medical studies at Nisibis during the sixth century, because there is no mention of the subject in the earlier canons. In any case, medicine does not appear to be fully integrated into the curriculum. The school clearly had a *xenodocheion* or infirmary and an official in charge of its operation. The director was to administer the infirmary only with the aid of a doctor, which implies that the director was not a doctor and that there were medical personnel in the institution. The first canon also stipulates the punishment of the director who abused his office, which suggests that the office was an important position and had posed a serious temptation in the past. The nineteenth canon indicates that, aside from the students of theology, there were medical students and that medical texts were being studied. Vööbus suggests that this canon shows that medical students were not highly esteemed in the school.[37] This may not be the case, for the canon clearly says that the students were segregated because the study of theology and medicine were not compatible. Generally, it attests to the ambivalence of the Church to profane medicine, a common feature of Christianity from its beginning, a similar relationship existed later between Islam and professional medicine.[38] Moreover, the canon indicates, contrary to Vööbus, that medicine, a potentially prestigious and lucrative career, was attracting students away from theology, which was the primary purpose of the seminary.[39] The twentieth canon appears to confirm this interpretation: those who abandoned theology for medicine were not permitted to study theology further, except those physicians who resided in the local community. There is no evidence, however, of formal medical training, that is, a "medical school," beyond the reading of medical texts and the presence of an infirmary where Galenic medicine may have been practiced.

[36] *The Statutes of the School of Nisibis,* ed and trans Arthur Voobus, in *Papers, Estonian Theo Soc. in Exile,* [Stockholm], 1962, *12* 92–93, 100–101

[37] *Ibid*, p 100, n 61 See also Voobus, *History of the School of Nisibis,* pp 285–86

[38] See Dols, *Medieval Islamic Medicine,* p 40, and the bibliographical references

[39] The study of medicine, however, should not necessarily be interpreted as a radical departure from theological education. As in antiquity, an educated man, albeit a Christian, was expected to know something about Greek medicine See, for example, the late fourth-century *Treatise on the Nature of Man* by Nemesius, bishop of Emesa (William Telfer, trans , *Cyril of Jerusalem and Nemesius of Emesa* [London SCM Press, 1955], pp 203–453) This educational ideal or *paideia* persisted into the Islamic era

Medical study at Nisibis in the second half of the sixth century is well illustrated by the life of Mar Babai, recorded in the anonymous Chronicle of Si'irt, which is a tenth- or eleventh-century Arabic translation of a lost earlier Syriac chronicle. Mar Babai came from a wealthy Syrian Christian family.

> After he had studied the Persian books [?], he turned to the hospital [*al-bīmāristān*] at Nisibis, where he read the books of medicine He stayed at the school for fifteen years, and he became skillful in the [Greek] sciences [*al- 'ulūm*][40] At times he would read in the hospital. One day, while he was there, sleep overcame him, and he heard a terrible voice that commanded him to go to Mt Izla to be close to Mar Abraham, the leader of the monks.[41]

Mar Babai gave up most of his worldly goods, became a monk, and joined the monastic community on Mt. Izla, where he led an ascetic life. He went back to his home, Beit Zabdai, and built on his family's land a celebrated monastery that contained large schools Subsequently, he returned to Mt. Izla and gained a saintly reputation throughout Persia because he cured the sick and converted many to Christianity.

Although Mar Babai's miraculous conversion to a saintly life is exceptional, his biography is important in that it attests to medical study that was possible at Nisibis and to the presence of an infirmary at Nisibis A late eighth-century source says explicitly that Mar Babai was a doctor in the *xenodocheion* at Nisibis.[42] Furthermore, it may be reasonable to assume that the teaching of Babai in the infirmary was on medical topics.[43] In general, the biography affords some background to the regulations of Ḥenānā that were felt to be necessary for the supervision of the infirmary and the students at the end of the century

This detailed review of Syriac medicine in the pre-Islamic period has been necessary for two reasons. First, the review establishes that the *xenodocheion* was known in the Sassanian Empire as a Christian institution for the medical care of the ill. It is within the context of this Syriac charitable facility that we can understand the development of the Islamic hospital. Second, the review has been necessary because the existence of a medical center at Jūndī-Shāpūr is largely based on the assumption that it resembled the School of Nisibis.[44] There is, however, no basis for the claim that there was a medical school, to say nothing of a hospital attached to one, at Jūndī-Shāpūr.[45] On a more modest scale, there was probably at Jūndī-Shāpūr a seminary like the one in Nisibis, where medical texts were read, and an infirmary where Galenic medicine was practiced.

---

[40] Cf the Life of Bar-'Idta, who studied theology and the "Greek sciences" at Nisibis in the sixth century, in Jean-Baptiste Chabot, ed and trans, "Le Livre de la chasteté composé par Jésusdenah, évêque de Baçrah," *Mélanges d'archéologie et d'histoire,* 1896, *16* 9, 234

[41] Addai Scher and Robert Griveau, eds and trans, "Histoire nestorienne (chronicle de Séert)," part 2, *Patrologia Orientalis, 13,* fasc 4 (Paris Firmin-Didot, 1919), pp 530–31, cf the French translation, Chabot, "Le Livre de la chasteté," pp 25, 246–47 See also Chabot, "L'École de Nisibe, son histoire, ses statuts," *Journal Asiatique,* ser 9, 1896, *8* 82

[42] Chabot, "Le Livre de la chasteté," pp 25, 246–47

[43] Cf. Voobus, *History of the School of Nisibis,* pp 267, 290

[44] Curiously, Segal ("Mesopotamian communities," p 128) turns this assumption on its head, by saying "At the hospital at Nisibis there were facilities for the training of students, as at the famous Christian medical college of Beth Lapat [the Syriac name for Jūndī-Shāpūr]" Furthermore, according to Jean M Fiey, there was a rivalry at the caliphal court between "the two great schools of medicine, at Nisibis and Jūndī-Shāpūr," which is

The only firm evidence of such comparable activity is a letter from Timothy, the Syriac patriarch from A.D. 780 to 823. There is little doubt that his letters are authentic, so he is an important source for the history of the Eastern Church and the early 'Abbāsid period generally. Timothy was an influential figure at court as well as within the Church, which underwent a remarkable expansion during his patriarchate. He is well known for his philosophical and theological debates on Aristotle before the caliph al-Mahdī, and he is also known for his translations of Greek texts from Syriac into Arabic. One of Timothy's letters to Sergius, a doctor and a good friend whom Timothy had appointed as metropolitan of Elam, deals with the education of students at Sergius's school. Elam, also called Beth Khuzaye or Khūzistān, was the earliest ecclesiastical province of the Eastern Church; its center from the beginning was Beth Lapaṭ, which is better known as Jūndī-Shāpūr. Timothy had already sent a student to Sergius to be instructed in theology. In this letter he tells Sergius that he is sending another young man to be educated there "I have also sent to you another youth for education, that is our Gabriel, for he too is very eager for the craft of medicine. So, hand him over to Zistq [?] and his establishment of education."[46]

A few years later, 'Alī ibn Sahl Rabbān aṭ-Ṭabarī wrote one of the earliest Arabic medical compendia, which can be dated to A.D 850. In his section on miscarriage and the easing of delivery, he recounts a magical practice: "The director of the hospital in Jūndī-Shāpūr [*ra'īs bīmāristān Jūndī-Shābūr*] told me about a family in al-Ahwāz who possess a stone that protects the foetus if it is hung on the pregnant woman"[47] Thus, a hospital of some kind must have existed in Jūndī-Shāpūr in the first half of the ninth century A.D

Moreover, the later reputation of Jūndī-Shāpūr as a great medical center may have been taken over from or conflated with that of Susa, a neighboring city directly to the west of Jūndī-Shāpūr Ath-Tha'ālibī (d A.H. 429/A.D 1038), who had access to the Sassanian royal annals, says about pre-Islamic Persia.

---

recounted in the letters of the patriarch Timothy I ("L'Elam, la première des métropoles ecclésiastiques syriennes orientales," in Fiey's *Communautés syriaques en Iran et Irak des origines à 1552* [London Variorum Reprints, 1979], chap 3a, p 254) There is no evidence in the letters of Timothy for the rivalry of the two schools (see below)

[45] Horden, "Nestorians, Gondeshapur, and Islamic Medicine" (typescript, 1983)

[46] *Timothei Patriarchae I Epistulae,* ed and trans Oscar Braun, *CSCO,* Scriptores Syri, 2d ser, vol 67 (Paris, 1914–15), part 1, p 108, part 2, p 71

[47] 'Alī ibn Rabbān at-Tabarī, *Firdausu l-Hikmat or Paradise of Wisdom,* ed Muhammad Z Siddīqī (Berlin and Charlottenburg Sonne, 1928), p 39

> Thus, the people of Sūs became the most skilled in medicine of the people of Ahwāz and Fārs because of their learning from the Indian doctor [who was brought to Susa by Shāhpūr I] and from the Greek prisoners who lived close to them; then [the medical knowledge] was handed down from generation to generation.[48]

The medical activity at Jūndī-Shāpūr should be seen, therefore, as only one example of the monasticism of the Eastern Church and its charitable works.

In the early Islamic era, we encounter what is traditionally considered to be the first Muslim "hospital." This facility was founded in A.H. 88/A.D. 707 by the Umayyad caliph al-Walīd (A.H. 86–96/A.D. 705–15) in Damascus. The earliest report of this event is by Ṣāliḥ ibn Kaysān, a reliable informant who lived at the time and carried out several of the caliph's building projects. He says that "al-Walīd confined [*ḥabasa*] the lepers, so that they would not go out among the people. He ordered that provisions [*arzāqan*] be provided to them, and this was done."[49] It is reasonable to assume that lepers existed in Damascus, although we are poorly informed about this city in the pre-Islamic period. Al-Walīd's charity toward the lepers appears entirely consistent with earlier Byzantine and Islamic philanthropy. Regarding Byzantine leprosaria, we know that they existed from the inception of Christian welfare establishments in the fourth century For example, the famous medical complex created by St. Basil in Caesarea (in Cappadocia) contained a leper house (A.D. 369–72).[50] A number of lesser Byzantine hospices were also constructed for lepers—or persons believed to be such. Al-Walīd's special provision for the lepers is also consistent with an act of charity by the second Muslim caliph, ʿUmar (A.H. 13–23/A.D. 634–44). During the early Arab conquests, he had journeyed to Syria in A.H. 18/A.D. 639, when the Muslim army had retreated to al-Jābiyah, in the Golan southwest of Damascus. On his way to al-Jābiyah, ʿUmar apparently encountered a Christian leper colony in distress, and he made provisions for the lepers' support.[51] Therefore, it is probable that al-Walīd created a shelter or hospice (as in the early Byzantine *xenodocheion*) for lepers and that they were segregated from society as in the past.

Unfortunately, there is a dearth of information about comparable acts of charity in the Umayyad period; presumably, the largely Christian population continued to support and use their charitable institutions. The earliest Muslim chronicler to attribute specifically a *bīmāristān* or hospital to al-Walīd was Ibn al-Faqīh al-Hamadhānī, a geographer who lived in the ninth century A.D., at a time when the *bīmāristān* had become a recognized institution of Islamic urban life.[52] However, the word *bīmāristān* (meaning a "place for the sick" in Persian) was normally not used to designate a leprosarium in Arabic; usually the term used was *dār al-judhamā',* and it did not denote a medical facility.

---

[48] Ath-Thaʿālibī, *Histoire des rois des Perses*, ed and trans Hermann Zotenberg (Paris Imprimerie Nationale, 1900), pp 531–32

[49] Muhammad ibn Jarīr at-Tabarī, *Annales*, ed M J De Goeje, 15 vols (Leiden E J Brill, 1879–1901), 2d ser, 2 1195–96

[50] See Mary E Keenan, "St Gregory of Nazianus and early Byzantine medicine," *Bull Hist Med*, 1941, *9* 17–18.

[51] Al-Balādhurī, *Kitāb Futūh al-Buldān*, ed M.J De Goeje (Leiden, 1866), p 129, ll 15–17, see Dols, "Leper," pp 898–99 For possible evidence of comparable Christian leper colonies in Palestine, see Joseph Zias, "Leprosy in the Byzantine monasteries of the Judean Desert," *Koroth*, 1985, *9* 242–48

The common adoption of the New Persian term *bīmāristān* for *hospital* by the Arabic writers of the ninth century A.D. would strongly suggest that the direct origins of the Islamic hospital should be sought in the Syriac *xenodocheion.* In this regard, we are very fortunate to have another letter of the patriarch Timothy, also addressed to Sergius On the basis of internal evidence, it can be dated to A.D. 790, which places the events described in it early in the reign of Hārūn ar-Rashīd. After recounting personal and church affairs, he writes:

> We have built a *'ksndwkyn* [= *xenodocheion*], that is a *bymrstn* [= *bīmāristān*] in the Royal Cities [al-Madā'in or Cteisphon/Seleucia], and we have spent more or less 20,000 [*zūzē*] It has been roofed over already and completed, and pray that our Lord may give in it healing to the sick and to those who are bodily or spiritually sick We have sent, with God's help, by Zaka' the monk two carpets, that is *Muslā* [carpets], one for Mārdāshah and one for Slībā, and we don't know whether they have arrived yet May your grace be prosperous in our Lord and praying for us. We have [purchased] lands for the "Place of the Fathers" [*beth abāhātā*] for 100,000 *zūzē*[53]

The Catholicos had founded a *xenodocheion,* and he defined it, equating it with a *bīmāristān* Timothy's straightforward definition of the term for his correspondent would seem to indicate that his friend was more familiar with the Persian term than the Greek loanword into Syriac, which would imply that *bīmāristān* had become a common term by the late eighth century and was not unfamiliar to Sergius Moreover, Timothy was writing at a time when Persian vocabulary was penetrating both Syriac and Arabic. The Persian word *bīmāristān* probably supplanted the Arabic phrase *dār al-marḍā,* which also means a "place for the sick," because the former term signified a recognized institution in Persia by the Islamic era, the latter term survived in the Islamic West as a common expression for a hospital. Thus, a place clearly for the sick was created in nearby al-Madā'in in the late eighth century A.D., presumably with governmental approval and with the financial support of the physicians. Timothy probably raised the funds for his hospital from the wealthy Christians at the caliphal court, especially the famous doctor Jibrīl ibn Bakhtīshū'.[54]

---

[52] Ibn al-Faqīh al-Hamadhānī, *Kitāb al-Buldān,* in *Bibliotheca Geographorum Arabicorum,* ed M J De Goeje, 8 vols (Leiden E J Brill, 1870–94), 5 106, ll 19–20

[53] For a summary of the letter, see *Les Lettres du Patriarche Nestorien Timothée I,* ed Raphael J Bidawid, in *Studi e Testi,* 1956, *117* 35–36 Sebastian Brock has very kindly read for me a copy of the letter (no 44) that is located in the Mingana Collection (Selly Oak, Birmingham), no 587F, fol 802b For further background, see Hans Putman, *L'Église et l'Islam sous Timothée I (780–823),* in *Recherches,* n s , series b Orient chrétien, vol 3 (Beirut. Dar el-Machreq, 1975) The final comment in the quotation may be significant because it suggests the date when the patriarchate was moved to the Muslim capital from al-Madā'in This residence may be identified with the convent of Kalīlīshū', also called Dayr al-Jāṯalīq, see Michel Allard, "Les chrétiens à Baghdād," *Arabica,* 1962, *11* 378

There were many Christian doctors, and as bishops and court physicians, they were conspicuous in politics in the pre-Islamic and Islamic periods From the ruler's point of view the doctors were personally useful. In addition to practicing medicine, they enhanced the prestige of the court through their status as learned men, as always, and in the early ninth century A.D. their scientific interests were probably particularly congenial to the rationalistic drift of Islamic theology. More important, they were convenient and effective instruments for governing a substantial portion of the population It should be recalled that the Syriac Church was placed in an essentially different position from that of the Church in Byzantium because its members were a minority in both the Sassanian and Islamic empires.

From the physicians' point of view, their objectives were personal, professional, and ecclesiastical. The doctors naturally sought to maintain, often over several generations, their influential and well-paid positions at the 'Abbāsid court. It appears that the physicians' promotion of their profession was motivated by the need to sustain their privileged position and to overcome the legal and communal disadvantages of *dhimmī* or minority status through the support of a cultural and professional counterweight to the contemporary growth of the so-called Arab sciences.[55] The creation of charitable medical institutions by the East Syrian Christians may also have been part of the competition between themselves and the West Syrian Christians for adherents, which was particularly keen in the ninth century. With regard to the Muslim regime, the doctors at court continually sought to involve the state in the affairs of the Church, for they generally represented the landed Persian Christian aristocracy that opposed ecclesiastical autonomy, which was advocated by the regular clergy.[56] Consequently, the doctors were certainly generous in their support of the Church's charitable services, but they were not disinterested philanthropists.

In the competition for medical authority in the early 'Abbāsid period, the East Syrian doctors sought to strengthen their strong position by translating more of Galen's works into Syriac. On the other hand, the competitors were apparently weak; neither a Zoroastrian medical tradition nor the

---

[54] Wilson, "Bakhtīshū'," pp 60–61

[55] Ursula Weisser, "Zwischen Antike und europaischen Mittelalter Die arabisch-islamische Medizin in ihrer klassischen Epoche," *Medizinhistorisches J*, 1985, *20* 322, I am skeptical, however, about the suggestion that the 'Abbāsid regime sought a cultural fusion out of a desire to create "einer Religions- und Rasseschranken ubergreifenden politischen und geisten Einheit."

[56] Michael C Morony, *Iraq after the Muslim Conquest* (Princeton, New Jersey Princeton University Press, 1984), pp 347, 375–80, 468, 509, 511, 513

Muslim tradition of "Prophetic medicine" (largely Arab folk medicine that was attributed to the Prophet) seems to have been a major contender.[57] Only the Indian medical system posed a possible challenge to Galenism and may have co-existed with Greek medicine initially.[58] Aside from the customary (and anecdotal) rivalry of aulic physicians, the competition may be seen in the insistent claim of the Syrian Christians that medicine was invented by the Greeks.[59]

The legend that the first Islamic hospital was modeled on the Christian one in nearby Jūndī-Shāpūr may have arisen from the Syrian Christians' success in monopolizing medicine in Baghdad. Al-Jāḥiẓ tells the story of a starving Muslim physician in early ninth-century Baghdad who had no clients because, as al-Jāḥiẓ explains, the physician had a non-Christian name, he wore a white cotton cloak instead of a black silk one, and he did not speak the language of Jūndī-Shāpūr.[60] In other words, he was not a clearly recognizable Syrian physician from Jūndī-Shāpūr. What this tale also indicates is that there were Muslim physicians in early ninth-century Baghdad. The logical question that arises is: Where would such physicians have received their medical education? Surely not in Syriac seminaries; nor was apprenticeship in a Christian family business a likely possibility Most likely these physicians were Muslim converts or those who had received their training in a newly created Muslim hospital.

The writings of al-Jāhiẓ are particularly important for narrowing down the appearance of the first Muslim *bīmāristān* because of their early date; his collected stories can be dated between A.D. 837 and 842. In one of his other stories, "On the Talents of the Masters," al-Jāḥiẓ casually introduces a physician and the *bīmāristān* He says that he asked Bakhtīshū', presumably Bakhtīshū' ibn Jibrīl (d. A.D. 870), for a description of a battle that he had recently witnessed. And Bakhtīshū' replied:

---

[57] For Zoroastrian medicine, see Jurgen Hampel, *Medizin der Zoroastrier im vorislamischen Iran,* Abhandlungen zur Geschichte der Medizin und der Naturwissenschaften, vol 45 (Husum Matthiesen, 1982), L C Casartelli, "Un traité pehlevi sur la médecine," *Le Muséon,* 1886, *5* 296–316, 531–58 For "Prophetic medicine," see Penelope Johnstone, "Tradition in Arabic medicine," *Palestine Exploration Quart*, 1975, *107* 23–37, J Christoph Burgel, "Secular and Religious Features of Medieval Arabic Medicine," in *Asian Medical Systems A Comparative Study,* ed Charles Leslie (Berkeley and Los Angeles University of California Press, 1976), pp 44–62, Cyril Elgood, "The medicine of the Prophet," *Med Hist*, 1962, *6* 146–53, and his translation of two Arabic treatises on the subject in "Tibb-ul-Nabbi or medicine of the Prophet," *Osiris,* 1962, *14* 33–192 Most of the treatises on Prophetic medicine date from the later Middle Ages, but it is entirely possible that the creation and collection of these medical *hadīths* or pious traditions arose in the ninth century A D and in the context of the medical competition that is suggested here The medical traditions as a group have not yet been analyzed in the manner recommended by G H A Juynboll in his *Muslim Tradition Studies in Chronology, Provenance, and Authorship of Early "Hadīth"* (Cambridge Cambridge University Press, 1983)

[58] Muhammad Z. Siddīqī, *Studies in Arabic and Persian Medical Literature* (Calcutta Calcutta University Press, 1959), pp xxxv–xxxvi The study of Indian medicine in Persia was apparently well established According to later accounts, Shāhpūr I had an Indian physician sent to him from India "to whom the science of medicine seemed to have been revealed" His advisers distrusted the Greek doctors because of their secret hostility to the shah The Indian doctor cured him entirely, so that the king resumed his normal life He asked the doctor to choose the healthiest city in the empire, and the doctor chose Susa because of its excellent climate The shah eventually died there in A.D 272/73 See ath-Tha'ālibī, *Histoire des rois des Perses,* ed and trans Zotenberg, pp 531–32, and the discussion of Susa above It is also possible that Barzuwayh, the doctor of Khusraw I and the translator into Persian of *Kalīla wa Dimna,* may have translated books of medicine in India See Theodor Noldeke, trans , *Burzōes Einleitung zu dem Buch Kalīla wa-Dimna,* Schriften der wissenschaftlichen Gesellschaft in Strassburg, fasc 12 (Strassburg, 1912), Franz Rosenthal, "Die arabische Autobiographie," *Analecta Orientalia* [*Studia Arabica,* vol 1], Rome, 1937, *14* 10–11 For the text, see Louis Cheikho, ed , *Kitāb Kalīla wa-Dimna* (Beirut Catholic Press, 1952), p 50

[59] Fritz W Zimmermann, "The chronology of Ishāq ibn Hunayn's *Ta'rīkh al-atibbā'*," *Arabica,* 1974, *21* 328–29

[60] Al-Jāhiz, *Kitāb al-Bukhalā'*, ed G Von Vloten (Leiden E J Brill, 1900), pp 109–10

> We met them in a space that was the size of the hospital courtyard In less time than a man stricken with diarrhea needs to run to the latrine and return, we fought them back into a space narrower than a catheter. Then we killed them, and you could not have tossed a scalpel down without it landing on the vein of a man's wrist[61]

Lawrence Conrad has recently singled out this passage because of its date and because it demonstrates the strong reaction of al-Jāḥiz, proud of his Arab heritage, to the growing influence of foreign, particularly Persian, culture in Baghdad.[62] Consequently, the famous Christian doctor is portrayed as a narrow professional who knew nothing except his medical craft.

This passage leads us back naturally to the question of the actual foundation of the first Islamic hospital. We can push back the date of the Islamic hospital even before al-Jāḥiẓ's work in the fourth decade of the ninth century A.D We know that Ṭāhir ibn al-Ḥusayn, the 'Abbāsid governor of Khurāsān, wrote a letter to his son, 'Abd Allāh, at the time of his appointment as the governor of Diyār Rabī'a, and the letter was greatly admired by the caliph al-Ma'mūn (A.D. 813–33).[63] In this long epistle, which can be dated to A.H. 206/A.D. 821–22, the father advises his son on his duties as governor. Among other things, he says: "For sick Muslims you should set up hospitals [*dūrān*] to shelter them, people to attend them, and doctors to treat their illnesses."[64] The establishment of hospitals seems already to have become a symbol of statesmanship, so that the hospital had surely become an accepted institution by the first decades of the ninth century.

Who had done it? The most likely answer is Yaḥyā ibn Khālid ibn Barmak, who had become the tutor of Hārūn ar-Rashīd in A.H. 161/A.D. 778 and his wazīr in A.H. 170/A.D. 786, when Hārūn became caliph. For the following seventeen years Yaḥyā ibn Khālid and his two sons virtually ruled the empire. Yaḥyā's hospital must have been established before A.H. 187/A.D. 803, when the Barmakid family mysteriously fell from power.[65] The best evidence for this suggestion is *The Fihrist* or *Index* of books written by Ibn an-Nadīm, who died in Baghdad in A.D. 995 or 998; the book was composed in A.H. 377/A.D. 987–88. Ibn an-Nadīm mentions the Barmakid hospital in two places:

---

[61] *Rasā'il al-Jāḥiz,* ed 'Abd as-Salām M Hārūn, 2 vols (Cairo Maktabat al-Khānjī, 1964–65), 1 383

[62] Conrad, "Institution of the Hospital in Medieval Islam."

[63] *The Encyclopaedia of Islam,* 1st ed (Leiden and London E J Brill, 1913–34) (hereafter referred to as *EI1*), s v. "Ṭāhir b al-Husain" (W Barthold)

[64] *Sechster Band des Kitāb Baghdad von Ahmad ibn Abī Ṭāhir Taifūr,* ed. and trans Hans Keller (Leipzig Harrassowitz, 1908), p 50, ll 14–15 (see also *EI2,* s v "Ibn Abī Ṭāhir" [Cl Cahen]), at-Tabarī, *Annales,* ed De Goeje, 3d ser , 2· 1059, ll 6–7

[65] See *EI2,* s v "al-Barāmika" (D Sourdel), Lucien Bouvat, *Les Barmécides d'après les historiens arabes et persans* (Paris· Ernest Leroux, 1912), Nabia Abbott, *Two Queens of Baghdad Mother and Wife of Hārūn al-Rashīd* (Chicago, Illinois University of Chicago Press, 1946)

> Translators of India and the Nabataeans Mankah [*Kankah*] al-Hindī, who was one of a group [employed by] *Ishāq* ibn Sulaymān ʿAlī al-Hāshimī. He translated from the Indian language into Arabic Ibn *Dahn,* al-Hindī, who administered the Bīmāristān (Hospital) of the Barmak family He translated from the Indian language into Arabic. .
>
> The Names of Indian Books on Medicine Extant in the Language of the Arabs. Book of Sasard, ten sections—Yaḥyā ibn Khālid ordered Mankah (*Kankah*) the Indian to translate it at the hospital and to render it in the form of a compilation; . . . *Istankāraljāmi* ʿ, translated by Ibn *Dahn; Sundastāq,* which means the Book of Best Success, an exposition (translation) by Ibn Dahn, director of the hospital, . . . Names of Drugs of India, which Mankah (*Kankah*) translated from *Ishāq* ibn Sulaymān.[66]

As can be seen, the Barmakid family was closely involved with the translations of Sanskrit medical texts into Arabic. It seems that Yaḥyā ibn Khālid, the Barmakid wazīr, commissioned two Indians, Mankah (or Kankah) and Ibn Dahn, to make these translations, and both were closely associated with the Barmakid hospital.[67] Mankah was apparently ordered to summarize the *Sushruta*[68] at the hospital. Presumably commissioned by Yaḥyā as well, Ibn Dahn translated the *Astāngahrdaya-Samhitā* (Ar: *Astānka [h] al-Jāmi* ʿ) and the *Siddhisthāna;* he is identified twice as the director of the hospital. ʿAlī aṭ-Tabarī used the translations of Ibn Dahn and Mankah in his *Firdaws al-Ḥikma* for his sketch of Indian medicine; the work attests, however, to the ascendancy of Greek medicine by the mid-ninth century.[69] Consequently, although Indian medicine made a substantial contribution to early Islamic medicine, these men remain shadowy figures.[70]

Yaḥyā ibn Khālid grew up in Merv, the Khurasānian capital, and he became well known for his generosity, his buildings, and especially his support of Persian culture.[71] Given Yaḥyā's power and interests, particularly in the promotion of Persian culture, it is not surprising that he would have created a *bīmāristān* in which Perso-Indian medicine was encouraged.[72] The choice and subsequent popularity of the word *bīmāristān,* rather than the more likely borrowing of *'ksndwkyn,* the Syriac word for *xenodocheion,* would seem to indicate that the first hospital was oriented toward native Persian practice. Moreover, the creation of learned institutions to promote ideological points of view was, of course, not unknown during the ʿAbbāsid period. Perhaps the best example is the *Bayt al-Ḥikma* or "House of Wisdom" that was founded by the caliph al-Ma'mūn in Baghdad. Important translations of Greek philosophical and scientific texts were made there, but the institution was also known for its anti-Zoroastrian and pro-Muʿtazilite theological views.[73]

---

[66] *The Fihrist of al-Nadīm,* trans Bayard Dodge, 2 vols (New York Columbia University Press, 1970), 2 589–90, 710 See Gustav Flugel, "Zur Frage uber die altesten Uebersetzungen indischer und persischer medicinischer Werke ins Arabische," *Zeitschrift der Deutsche Morgenlandische Gesellschaft,* 1857, *11* 150–51, Muhammad Z. Siddīqī, "The science of medicine under the Abbasids," *J Proc. Asiatic Soc. Bengal,* n.s , 1933, *29* 39–50, *idem, Studies,* chap 4, Heinrich F Wustenfeld, *Geschichte der arabischen Aerzte und Naturforscher* (Gottingen, 1840), p 19, Ullmann, *Die Medizin im Islam,* pp 103–7

[67] See Sezgin, *Geschichte des arabischen Schrifttums,* 3 191–202 Unaccountablv, Sezgin places the two men in the *bīmāristān* of Jūndī-Shāpūr (pp 199, 201)

[68] See Kaviraj K. Bhishagratna, *An English Translation of the Sushruta Samhita Based on an Original Sanskrit Text,* The Chowkhamba Sanskrit Studies, no 30, 2d ed , 3 vols (Varanasi, 1963)

[69] Max Meyerhof, "ʿAlī at-Tabarī's 'Paradise of Wisdom' one of the oldest Arabic compendiums of medicine," *Isis,* 1931, *16* 1–54, *idem,* "On the transmission of Greek and Indian science to the Arabs," *Islamic Culture,* 1937, *11* 17–29, Alfred Siggel, *Die indischen Bucher aus dem Paradies der Weisheit uber die Medizin des ʿAlī ibn Sahl Rabbān at-Tabarī, ubersetzt und erlautert,* Akademie der Wissenschaften und der Literatur, Abhandlungen des geistes- und sozialwissenschaftlichen Klasse, 1950, no 14 (Wiesbaden Franz Steiner, 1951)

[70] See Siddīqī, *Studies,* pp 36–37

The Barmakid hospital was probably founded in Baghdad at approximately the same time that Timothy was creating his *bīmāristān* in al-Ma-dā'in; whether there was any connection between the two foundations is impossible to say. The so-called Old Hospital was located in the suburb of Karkh, outside Baghdad's Kūfa Gate, and it was situated next to the Hospital Bridge.[74] Although it cannot be proved, this may have been Yaḥyā's hospital. Wherever it was, it is commonly assumed that the Old Hospital served as the prototype for the later and better known ones.[75]

Why was Hārūn ar-Rashīd given credit for the original hospital? It would be natural that everything good and generous should eventually have been attributed to this caliph as a part of his heroic stature—after the realities of his caliphate had been forgotten. It may also have been forgotten that the Barmakids were the ones who had actually established a non-Christian *bīmāristān* that clearly encouraged Perso-Indian medicine. This "tainted" pedigree may explain why the building of the Barmakid hospital is not mentioned in the Muslim or Christian chronicles. Later, when the resentment against Persian influence had dissipated, it would be easy to attribute the hospital to the caliph. It seems even more probable that the hospital's origins were not truly forgotten, but that Hārūn ar-Rashīd confiscated the new foundation, along with all of the Barmakids' other property, when the family was discredited We certainly hear nothing of the Barmakid hospital after the family's demise Perhaps the caliph should be given credit for recognizing a good thing and continuing to patronize it As an imperial palimpsest, it gained even greater importance and influence.

---

[71] Edward G Browne, *A Literary History of Persia,* 4 vols (Cambridge Cambridge University Press, 1908–28), 1 258–59

[72] Paul Horn, "Zur Krankenpflege im alten Persien," *Zeitschrift fur Krankenpflege,* 1903, 5 170 Although it would be impossible to prove, the Buddhist background of the Barmakid family may also have predisposed them toward the creation of hospitals

[73] *EI2,* s v "Bayt al-Hikma" (D Sourdel), as well as "Dār al-Hikma" and "Dār al-ʿIlm" (D Sourdel) The basis for Sourdel's statement that the Bayt al-Hikma was "undoubtedly in imitation of the ancient academy of Djundaysābūr" is quite unclear There may have been, however, a connection between the Bayt al-Hikma and our subject, because its library, often called *khizānat al-hikma,* was the site of translations from the Greek that were begun by Hārūn and the Barmakids

[74] Guy Le Strange, *Baghdad during the Abbasid Caliphate* (Oxford Oxford University Press, 1900), p 62 and map 4; Jacob Lassner, *The Topography of Baghdad in the Early Middle Ages* (Detroit, Michigan Wayne State University Press, 1970), pp 102, 202, 278

[75] For a fanciful reconstruction of this hospital, see Elgood, *Medical History of Persia,* pp 70–71

There is no reliable evidence to connect the Christian doctors from Jūndī-Shāpūr to the founding of any Muslim hospital Yet, in view of their number and influence at the ʿAbbāsid court and in the imperial capital, it seems natural that they sought to monopolize the posts in any such institution and that they succeeded in doing so. They clearly promoted Greek over Persian-Indian medicine (except in the area of pharmacology), and from the early ninth century were able to define the profession of medicine and its practice in terms of Galenic teaching. The early control of medicine by Christians and their contributions probably became palatable to Muslims after the tenth century, when Muslim doctors had come to dominate the profession and all the extant works of Galen had been translated into Arabic. Then a more benign view could be taken of the Christian doctors from Jūndī-Shāpūr.

The well-known translations of medical texts in the early ʿAbbāsid period reflect the struggle for medical authority at the time. The translation movement actually consisted of three distinct but related processes. The biography of Ḥunayn ibn Isḥāq (A.D. 809–77), the most famous translator, attests to the transmission of texts from Greek into Syriac. This process had been going on since the sixth century and reached its apogee under his direction.[76] These translations were almost entirely made for Christian physicians who could not read Greek. Presumably, the Syriac translations were used for medical education and reference, and we know that in the ninth century there were at least two Nestorian schools in Baghdad that taught Greek medicine and philosophy, one was located in the southeastern suburb of Karkh.[77] Second, we have seen that Sanskrit medical texts were transmitted, sometimes through Persian, to the West during the early ʿAbbāsid period. The translations were closely connected with the Barmakids' hospital. Third, the translations into Arabic from Greek (and Syriac) sources probably began in the late Umayyad period and were usually commissioned by non-medical patrons.[78] The physicians of Jūndī-Shāpūr are never mentioned as translators of any medical work into Arabic.[79] Generally the later medieval historians, and their modern successors, have emphasized the last group of translations because of the eventual dominance of the Arabic texts and Muslim physicians, and they have represented these translations as the results of altruistic support and disinterested scholarship. These accounts, however, obscure the considerable self-interest in the promotion of these translations, which explains more adequately the striking receptivity of Islamic culture to "foreign sciences."[80]

---

[76] Gotthelf Bergstrasser, *Hunain ibn Ishāk und seine Schule* (Leiden E J Brill, 1913), Max Meyerhof, "New light on Hunain ibn Ishāq and his period," *Isis*, 1926, *8* 685–724, *idem*, "Les versions syriaques et arabes des écrits galéniques," *Byzantion*, 1926, *3* 33–51

[77] See Allard, "Les chrétiens," p 381

[78] D M Dunlop, "The translations of al-Bitrīq and Yaḥyā (Yuhannā) b al-Bitrīq," *J Roy Asiatic Soc*, 1959, p 142

[79] Siddīqī, *Studies*, p 28

The generous support for these Arabic translations of Greek medical texts is closely related to the founding of hospitals, for the hospitals were invariably the result of royal patronage. As the letter of Ṭāhir suggests, support of hospitals was part of the patronage expected of Muslim leaders. Whether the wazīr or the caliph established the first hospital in Baghdad, it was stamped by royal patronage. It served as a symbol of imperial prestige, wealth, and charity. The early ʿAbbāsids rapidly assumed the style of the Sassanian kings, and we have seen that at least one Persian king had facilitated the establishment of a Christian hospital. More important, perhaps, was ʿAbbāsid competition with the contemporary Byzantine emperors, who were patrons of charitable institutions and scientific learning. On the local level there may have been competition with the charity of the Christian community, as with Timothy's *bīmāristān*. The Muslims could hardly be upstaged in such charitable works, for there was the strong obligation in Islam, as in Christianity, to be charitable, and, given the caliph's wealth and leadership, philanthropy was clearly expected. There was probably, also, a distinct need for such charity because of the general failure of the *zakāt* or obligatory alms tax to meet the demands of the increasing Muslim population, particularly in the burgeoning capital. Moreover, the absence of Christian monasteries as centers of social services in the new Islamic cities and the subsequent decline of monasticism, along with the Christian populations, elsewhere in the ʿAbbāsid Empire was an added incentive for Muslim charity.

Although a major change in the nature of charity in late antiquity has recently been emphasized by scholars,[81] imperial patronage persisted in the Byzantine and Islamic empires, which carried on the ancient tradition of imperial munificence on a grand scale. Although it was irregular, imperial patronage was usually lavished on monumental buildings. Furthermore, in an unstable political world, princely patronage conveyed a sense of steadfastness, legitimacy, and benevolence, and there can be little doubt that the military elites who ruled most Islamic states in the medieval period needed to make such an impression The hospitals were conspicuous signs of this princely Islamic patronage. They were built until modern times as monumental structures, usually named after their patrons, they were few in number and located only in the major cities. Moreover, the hospital was a private institution. While it is questionable whether there were any "public" institutions in medieval Islamic societies, the private nature of the hospital is seen clearly in the surviving *waqfs* or endowments. This non-public legal status may explain the absence of the hospital from the *ḥisba* books, the manuals for market inspectors who were supposed to supervise "public affairs."[82]

---

[80] Concerning the closely related field of astrology, Felix Klein-Franke does not see a similar competition for authority between the Greek and Indian traditions *Iatromathematics in Islam A Study on Yuhanna ibn as-Salt's Book on "Astrological Medicine," Edited for the First Time,* Texte und Studien zur Orientalistik, no 3 (Hildesheim, Zurich, and New York. Georg Olms, 1984), p 64 Certainly, the Greek tradition did gain predominance in Islamic astrology, but this obvious conclusion begs the question of why it achieved this position. Western students of Islamic culture should be more aware of their general prejudice in favor of Greek learning in such matters

[81] See Peter Brown, *The Cult of the Saints* (Chicago, Illinois University of Chicago Press, 1981), pp 45–46

The background to the Islamic hospital and the hospital's princely patronage help to explain its distinctive character. It we can judge from the later hospitals in Islamic countries, there had been some significant modifications of the Christian prototype. In addition to being larger and better funded, the Islamic hospital was exclusively a medical institution. The word *bīmāristān* had this distinct meaning from its inception and is equivalent to the Byzantine *nosokomeion* or *xenon* The Islamic hospital was, therefore, comparable to the twelfth-century Pantocrator Hospital in Constantinople, a fact that has tempted some scholars to believe that this unusual Byzantine foundation was due to Islamic influence. On the other hand, Islamic society appears to have lacked the numerous welfare institutions of Byzantine society, its orphanages and leper houses, its shelters for widows and the aged.

The apparent modernity of the Islamic hospital is probably due to its relatively secular orientation and its concentration on Galenic medicine. Unlike the Byzantine hospitals, the Islamic institutions were not run by the religious establishment; the administrator of an Islamic hospital was usually a highly-placed government official. Consequently, Christian and Jewish doctors were able to practice in them. Initially, this was probably making a virtue of necessity because of the Syrian Christians' virtual monopoly of medical expertise. In any case, unlike the Christian *xenodocheion,* the Islamic hospital was not closely associated with Muslim higher education, which evolved independently of medical studies, so that the doctors were relatively free to develop a professional institution far beyond the constraints of a seminary infirmary. The strong emphasis on Galenic medicine was a natural outgrowth of its study by Christian doctors and their presumed use of it in the *xenodocheion.* The Galenic texts were increasingly available in Arabic translations and had been organized into a set curriculum, as has been described. This concentration on texts was important because medieval Islamic society, like late antique Syrian society, lacked any criterion for medical expertise except the doctor's demonstrated knowledge of primarily Greek medical works.[83] For these reasons, the works of Galen especially continued to be studied, although not necessarily in a hospital; yet, medical training in a hospital was desirable, as is experience in any apprenticeship.

---

[82] While this absence of control by the *muhtasib* is generally true, one of the earliest *hisba* books stipulates that the *muhtasib* must oversee the hospital (*dār al-mardā*) See Robert B Serjeant, "A Zaidī manual of hisbah of the 3rd century (H)," *Rivista degli studi orientali,* 1953, *28* 10, 30

It is premature to describe fully the functioning of the Islamic hospital. It was obviously not a simple borrowing from the Syrian Christians, and it was certainly not a static institution. The notion of an Islamic hospital was apparently well known and promoted from the early ninth century, as we have seen in the letter of Ṭāhir ibn al-Ḥusayn and the works of al-Jāḥiẓ. There is little evidence, however, that this new institution spread rapidly in the ninth century A.D.; it is only from the tenth century that there were numerous foundations of *bīmāristānāt* in Baghdad and throughout the empire.[84] Furthermore, the letter of Ṭāhir suggests that the early hospitals may have been established initially only for Muslims. It is possible as well that the early hospitals were originally not designed exclusively for the poor. It is also unclear whether lepers were provided for in these institutions.[85] The early Islamic hospitals were, however, remarkable in their provisions for the insane *Bīmāristān* gradually came to mean an insane asylum in the later Middle Ages, but this was surely not the word's initial significance.

This one element of the Islamic hospital, the unprecedented care for the insane, epitomizes the evolution of the institution as a whole and its originality[86] The earliest evidence of provision for the insane in a hospital is associated with the hospital that was founded in al-Qaṭāʾiʿ (in the southwestern quarter of present-day Cairo) by Aḥmad ibn Ṭūlūn, the ʿAbbāsid governor of Egypt, in A.D. 872–73. Although Christian welfare institutions existed in Egypt, as in Iraq, in the pre-Islamic period,[87] Ibn Ṭūlūn's foundation may have been needed especially by the Muslim population in his new city. The Egyptian *bīmāristān* is mentioned by al-Kindī, a contemporary historian.[88] The account by the later Egyptian historian al-Maqrīzī

[83] See Gary Leiser, "Medical education in Islamic lands from the seventh to the fourteenth century," *J Hist Med*, 1983, *38* 48–75

[84] In the ninth century A.D there is evidence for the founding of Muslim hospitals in Baghdad (the hospitals of Hārūn ar-Rashīd and Badr al-Muʿtadidī), al-Qayrawān (the Arab capital in Tunisia), and al-Qatāʾīʿ (see below) Two hospitals are also supposed to have existed in Fustāt, the first Arab capital of Egypt, before A.D 900, but the literary evidence is late and unreliable, see Muhammad M Amin, *The Waqfs and Social Life in Egypt, A.H 648–923/A.D 1250–1517* (Cairo Dār an-Nahda, 1980), in Arabic, p 155 A chronology of the foundations will be given in my *History of the Islamic Hospital,* forthcoming

[85] Concerning the ninth-century leprosarium attached to the hospital in al-Qayrawān, see Hasan H ʿAbd al-Wahāb, "at-Tibb al-arabī fī Ifrīqīyā," *al-Fikr*, vol 3, part 10 (Tunis, 1958), pp 907–16, 951–55, this article is the basis of Sami Hamarneh's account of the topic in his "Development of hospitals in Islam," *J Hist Med*, 1962, *17* 375 Most of the manuscript sources from which ʿAbd al-Wahāb has gathered his information are not available to me to verify Unfortunately, one of his major sources is al-Mālikī, who died after A.H 449/A.D 1057, and is consequently a late source See also Dols, "Leper," p 907

[86] This topic is dealt with, in far greater detail, in my *"Majnūn" The Madman in Islamic Society*, forthcoming

[87] See Ewa Wipszycka, *Les ressources et les activités économiques des églises en Égypte du IVe au VIIIe siècles,* Papyrologica Bruxellensia, no 10 (Brussels Fondation Égyptologique Reine Elisabeth, 1972), pp 109–19

[88] *The Governors and Judges of Egypt or Kitāb el ʾUmarāʾ of el Kindī,* ed Rhuvon Guest, E.J W Gibb Memorial series, vol 19 (Leiden and London E J Brill, 1912), pp 216–17

contains an anecdote about the visit of the governor to the hospital and his encounter with a madman, which obviously implies the presence of madmen in the facility.[89] There is little doubt that wards for the mentally disturbed became a common feature of later Islamic hospitals.

It seems very probable that Ibn Ṭūlūn, in the creation of his provincial hospital, was following the imperial precedent of hospital construction in Baghdad. In any case, there is no evidence that the care of the insane was a regular function of the Christian *xenon* or *nosokomeion* in either Byzantium or its equivalent in the East.[90] The Christian churches and monasteries did, however, take a special interest in the insane; the clergy claimed especially the power to heal the mentally disturbed through exorcism.[91] As in the Byzantine Church, the Syriac saints' lives attest to frequent exorcisms of the possessed—virtually a *topos* of the hagiographical literature—both within and outside monastic communities.[92] The insane were often confined in churches as a form of treatment, which shows a striking continuity with ancient rites of incubation.[93] Such Christian practices were usually associated with St. George, and such miraculous healing survived in the Coptic Church until recent times.[94] Of special interest is Dayr Hizkel or Ezechial Monastery, a Syriac monastery that devoted considerable attention to the insane.[95] It was located on the road between Baghdad and Wāsiṭ in the town of an-Nuʿmānīja, which had been founded by the Lakhmids Dayr Hizkel was particularly noted by Arabic writers in the ninth and tenth centuries A.D. and was considered to be an insane asylum.[96] Still, among educated Christians, the Galenic interpretation of insanity co-existed with the religious view of madness.[97]

---

[89] Al-Maqrīzī, *Kitāb al-Mawāʿiz wal-iʿtibār bi-dhikr al-khitat wal-āthār*, 2 vols (Būlāq, 1853), 2 405–6

[90] There is no basis to the assertion, which is often repeated in modern histories of psychiatry, that there was a Byzantine institution known as a *mōrothropeion* or insane asylum The assertion can be traced back to Ulysse Trélat's *Recherches historiques sur la folie* (Paris, 1839) The term does not even exist in Greek, and the documentation for such an institution in Jerusalem and in Constantinople is nonexistent

[91] Exorcism was, from an early time, a customary part of Christian baptism, see, e g , Cyril's *Catechetical Lectures* (A.D 350) in Telfer, trans , *Cyril of Jerusalem and Nemesius of Emesa*, pp 1–199 For the historical study of the subject, see Henry A. Kelly, *The Devil at Baptism Ritual, Theology, and Drama* (Ithaca, New York Cornell University Press, 1985), and John Bowman, "Exorcism and Baptism," in *A Tribute to Arthur Voobus*, ed Robert H Fischer (Chicago, Illinois Lutheran School of Theology, 1977), pp 249–63

[92] The healing powers of the East Syrian missionaries were apparently a major element in the spread of Christianity in Persia, as they had been in the West. See Arthur Voobus, *History of Asceticism, CSCO*, vol 184, Subsidia 14, pp 313–15

[93] See "Vie du moine Rabban Youssef Bousnaya," trans Jean-Baptiste Chabot, *Revue de l'Orient Chrétien*, 1898, p 92, cf p 96

[94] Dols, "Insanity in Byzantine and Islamic Medicine," pp 135–48, F W Hasluck, *Christianity and Islam under the Sultans*, 2 vols (Oxford Oxford University Press, 1929), 1 326 et passim

[95] Al-Masʿūdī (ca. A.D. 956) calls it the Heraclean Monastery (Dayr Hiraql) *Les prairies d'or* (*Murūj al-dahab*), ed. and trans C Barbier de Meynard and Pavet de Courteille, 9 vols (Paris, 1861–77), 7 197–98 See also Jean M Fiey, *Assyrie chrétienne*, 3 vols , *Recherches*, ser 3, Orient chrétien (Beirut Dar el-Machreq, 1965–68), 3 201–2

[96] Abū l-Faraj al-Isfahānī, *Kitāb al-Aghānī*, 20 parts in 4 vols (Būlāq, 1868), part 18, p 30, Ya ʿqūbī, *Kitāb al-Buldān*, in Bibliotheca Geographorum Arabicorum, 7 321 = Gaston Wiet, trans , *Les Pays*, Textes et traductions d'auteurs orientaux, vol 1 (Cairo Institut Français d'Archéologie Orientale, 1937), p 164, Ibn ʿAbd ar-Rabbih, *al- ʿIqd al-farīd*, 3 vols (Cairo, A.H 1316–17), 3 240, al-Qazwinī, *ʿAjā ʾib al-makhlūqāt*, ed Heinrich F Wüstenfeld, 2 parts in 1 vol (Gottingen, 1848–49), part 2, pp 314–15 See also M Streck, *Die alte Landschaft Babylonien nach dem arabischen Geographen*, 2 vols (Leiden E J Brill, 1901), 2 301–3, Voobus, "Einiges uber die karitative Tatigkeit," p 21. For the Lakhmid dynasty, see *EI2*, s v "Lakhmids" (Irfan Shahid)

It seems that the *bīmāristān* drew upon the humane Christian practice of caring for the insane, as at Dayr Hizkel, but replaced Christian supernatural healing with Galen's humoral pathology.[98] Or, to put the issue in modern terms, the doctors promoted a medical model of abnormal behavior. Surely, Christian faith healing would have been inconceivable in a Muslim *bīmāristān,* and the Muslims had no alternative, for Orthodox Islam (as opposed to later sufism) did not sanction exorcism. Consequently, the institutionalization of Galenism in the Islamic hospital also entailed the medicalization of a new area of professional expertise.

I would like to mention one final myth in the early history of Islamic medicine, and it is even more widely accepted than the usual description of the origins of the Islamic hospital. It is a great mistake to say, as many—including myself—have done, that this creative period in Islamic culture witnessed the first large-scale transference of a body of scientific knowledge from one culture to another, which we can fully document.[99] This is simply not true, for we are well aware of the transplantation of Greek medical knowledge in Roman culture. This comparison, however, raises a number of questions about the development of so-called Islamic medicine. For example, why was Islamic society so receptive to this area of "alien wisdom"?[100] Why did not the Muslim rulers simply leave Galenic medicine in the hands of the Christians and Jews, as the Romans did with the Greek doctors? And why was it necessary to translate all the existing Galenic texts into Arabic? Perhaps a closer and more profitable comparison is with the Syrian Christian adoption of Greek learning, for in many ways, the selective assimilation of Greek culture by the Eastern Christians adumbrated the later process among Muslims.[101] The nature of cultural transmission is a complex one, but I would suggest that the receptivity and promotion of Galenic medicine, and specifically the creation of the Islamic hospital, were largely the result of competing self-interests and not of scientific altruism.

---

[97] This co-existence is well represented by Michael Psellus's (d AD 1079) *De operatione daemonum* or *Dialogue on the Operation of Daemons* The *Dialogue* of this famous author deals directly with the issue of the medical versus the supernatural interpretation of madness The belief in possession is based on the New Testament, the Church Fathers, and the author's personal experience The *Dialogue* ends with a reaffirmation of this belief and the efficacy of exorcism (*Psellus' Dialogue on the Operation of Daemons,* trans Marcus Collisson [Sydney, 1843], pp 36–39) See Cyril Mango, "Byzantine Literature as a Distorting Mirror," in his *Byzantium and Its Image History and Culture of the Byzantine Empire and its Heritage* (London Variorum Reprints, 1984), chap 2, pp 10–14, and José Grosdidier de Matons, "Psellos et le monde de l'irrationnel," *Travaux et Mémoires,* 1976, *6* 325–49 with further bibliographical references

[98] See my "Insanity and its treatment in Islamic society," *Med Hist*, 1987, *31* 1–14

[99] Dols, *Medieval Islamic Medicine,* p 8

[100] See the discussion of this receptivity by Felix Klein-Franke in his *Vorlesungen über die Medizin im Islam, Sudhoffs Archiv,* suppl no 23 (Wiesbaden Franz Steiner, 1982), pp 68–70 Cf Arnaldo Momigliano, *Alien Wisdom The Limits of Hellenization* (1975, Cambridge Cambridge University Press, 1978)

[101] See Hans Daiber, "Semitische Sprachen als Kulturvermittler zwischen Antike und Mittelalter Stand und Aufgaben der Forschung," *Zeitschrift der deutschen morgenlandischen Gesellschaft,* 1986, *136* 292–313

MEDICAL PRACTICE IN IMPERIAL BERLIN: THE CASEBOOK OF ALFRED GROTJAHN

Paul Weindling

Although historians of German medicine like Erwin H. Ackerknecht and Henry E. Sigerist have called for a history of medicine which takes the patient into account, very little is known about relations between practitioner and patient in nineteenth- and early twentieth-century Germany.[1] During the 1960s, efforts to study the rise of the medical profession were renewed, although sociological theories of professionalization were not exploited.[2] New research on professionalization of German medicine has relied largely on such theoretical models as the transition of medicine from a "patronage system" in the eighteenth century to a "colleague control system" by the twentieth century.[3] Historians of the rise of the German medical profession have analyzed the public image of the profession and its organization. They have used such sources as official statistics of the growing numbers of physicians educated and of their geographical distribution; public statements by leading physicians; and accounts of the embittered relations between sick funds and physicians' representative organizations.[4]

Reinhard Spree and Claudia Huerkamp have placed health care in the context of social processes of modernization. They have shown how increasing specialization in medicine was accompanied by the growth of bureaucracy in the organization of hospitals and public health. Professional monopolization of health care was advanced through strikes, boycotts, and

---

[1] Erwin H Ackerknecht, "Beitrage zur Geschichte der Medizinalreform von 1848," *Sudhoffs Archiv*, 1932, *25* 61–68, Henry E Sigerist, "Die Sonderstellung des Kranken," *Kyklos*, 1929, *2*· 11–20, and *idem*, "The social history of medicine," *West J Surg, Obstet, Gyn*, 1940, *48* 715–22 For a review of new research, see Paul Weindling, "Medicine and modernization the social history of German health and medicine," *Hist Sci*, 1986, *24* 277–301

[2] Walter Artelt and Walter Ruegg, eds, *Der Arzt und der Kranke in der Geschichte der Gesellschaft des 19 Jahrhunderts* (Stuttgart. Enke, 1967) Ingrid Vetter, "Die Deutsche Arztpraxis im 19 Jahrhundert" (Med Diss, Mainz, 1958)

[3] An influential model is Nicholas Jewson, "The disappearance of the sick-man from medical cosmology, 1770–1870," *Sociology*, 1976, *10* 225–44 For a recent critique see Roy Porter, "Introduction," in *Patients and Practitioners Lay Perceptions of Medicine in Pre-Industrial Society*, ed Roy Porter (Cambridge Cambridge University Press, 1985), pp 1–22 Also Paul Weindling, "Patients and practitioners virtues and vices of the new social history of medicine," *Hist Workshop J*, 1987 (in press)

[4] Two pioneering studies on sickness insurance and its social context are Ute Frevert, *Krankheit als politisches Problem, 1770–1880 Soziale Unterschichten in Preussen zwischen medizinischer Polizei und staatlicher Sozialversicherung* (Gottingen Vandenhoeck & Ruprecht, 1984), and Florian Tennstedt, *Vom Proleten zum Industriearbeiter Arbeiterbewegung und Sozialpolitik in Deutschland, 1800 bis 1914* (Cologne Bund Verlag, 1984)

Bull Hist Med, 1987, *61* 391–410

association, methods learned from industrial disputes. Although the profession could exploit scientific advances to legitimate its monopolistic claims, as Spree and Huerkamp emphasize, the profession lacked therapeutic effectiveness until the twentieth century. They highlight the survival—and intensification—of what can be described as tradition-oriented values, particularly the claims of the superior status of the *ärztlicher Stand* (medical profession).[5] Another approach is to analyze how physicians assumed the role of mediators of hygienic social values and thus furthered the socialization of the lower classes. Alfons Labisch has seen this culture as promoted by informal processes of socialization (as suggested by Norbert Elias's theory of a civilizing process). Gerd Göckenjan has linked this to state formation.[6]

There are two main defects to current analyses, both of them arising from the use of sources dealing primarily with the public image of the physician. One is the lack of an analysis of how the state actually interacted with the profession. The second problem, which will be pursued in this paper, is the lack of attention given to transactions between physicians and patients. Data on the distribution of physicians in the population, and on the percentage of the population with sickness insurance, only suggest the potential numbers of patients. There is scant information on actual patients, on why and how often they visited—or were visited by—the physician. This kind of information would allow further questions to be asked regarding the interactions between clinical experience and the social perceptions of physicians.

The question arises of whether, during the transition of medical practice from trade to profession, physicians treated patients of all classes in the same manner It has been suggested that whereas upper- and middle-class patients were treated with deference to the patient's feelings, lower-class patients, particularly those whose bills were paid by sickness insurance schemes, were treated in an increasingly authoritarian fashion. This analysis underlies a speculative reconstruction by Karl-Heinz Roth of the Berlin "working-class" practice of Alfred Grotjahn.[7]

---

[5] Reinhard Spree, *Soziale Ungleichheit vor Krankheit und Tod Zur Sozialgeschichte des Gesundheitsbereichs* (Gottingen Vandenhoeck & Ruprecht, 1981), Claudia Huerkamp, "Arzte und Professionalisierung in Deutschland," *Geschichte und Gesellschaft*, 1980, *6* 349–82, Huerkamp and Spree, "Arbeitsmarktstrategien der deutschen Arzteschaft im spaten 19 und fruhen 20 Jahrhundert. Zur Entwicklung des Marktes fur professionelle arztliche Dienstleistungen," in *Historische Arbeitsmarktforschung Entstehung, Entwicklung und Probleme der Vermarktung von Arbeitskraft*, ed Toni Pierenkemper and Richard Tilly (Gottingen Vandenhoeck & Ruprecht, 1982), pp. 77–120, Huerkamp, *Der Aufstieg der Arzte im 19. Jahrhundert Vom gelehrten Stand zum professionellen Experten Das Beispiel Preussens* (Gottingen Vandenhoeck & Ruprecht, 1985)

[6] Alfons Labisch, "Doctors, workers, and the scientific cosmology of the industrial world· the social construction of 'health' and the 'homo hygienicus,'" *J Contemp Hist*, 1985, *20* 599–615, Gerd Gockenjan, *Kurieren und Staat machen Gesundheit und Medizin in der burgerlichen Welt* (Frankfurt am Main. Suhrkamp, 1985)

[7] Karl-Heinz Roth, "Schein-Alternativen im Gesundheitswesen Alfred Grotjahn (1869–1931)—Integrationsfigur etablierter Sozialmedizin und nationalistischer 'Rassenhygiene,'" in *Erfassung zur Vernichtung Von der Sozialhygiene zum "Gesetz uber Sterbehilfe,"* ed Karl-Heinz Roth (Berlin Verlagsgesellschaft Gesund-

CASEBOOKS AS SOURCES

Casebooks of general practitioners, now among the rarest of historical sources, are very useful in exploring practitioner-patient relations, in which there is currently considerable interest.[8] I shall consider aspects of the Berlin practice of Alfred Grotjahn (1869–1931) between 1896 and 1906. His casebook records 700 patients and 3,760 consultations between 1 October 1896 and 28 March 1899, when the final entry for a new patient was made. It lists addresses, occupations, fees, diagnoses, and treatment,[9] and provides insight into the everyday practice of a young physician at the outset of his career. The evidence provided by the casebook is of additional significance because the casebook dates from a crucial stage in the formation of the medical profession and in the development of eugenics. Grotjahn was not content to remain in medical practice. He was interested in broader issues of social welfare. In 1898 he published a paper on alcoholism, and in 1908 one on hospital development. In 1912 his *Soziale Pathologie* was published; it became a classic textbook of social medicine and eugenics. Grotjahn became a leading theoretician of social hygiene, in 1920 occupying the first chair of social hygiene instituted in Berlin.[10]

That an advice manual to physicians in 1896 recommended keeping a casebook suggests that formal recording of patient consultations in casebooks was by no means established practice.[11] Contemporary comment on casebooks arose at times of conflict with the prevailing social order. In the 1890s, when Prussian police seized patient journals of Polish physicians so as to trace wounded insurgents, the incident provoked controversy over confidentiality. The police also seized patient records in cases of investigation of illegally induced abortions. Despite confidentiality strictures, the

---

heit, 1984) For a critique, see Paul Weindling, "Soziale Hygiene, Eugenik und Medizinische Praxis—Der Fall Alfred Grotjahn," *Das Argument Argument Sonderband* (= *Jahrbuch fur kritische Medizin,* 10), 1984, *119* 6–20

[8] Margaret Pelling and Charles Webster, "Medical Practitioners," in *Health, Medicine, and Mortality in the Sixteenth Century,* ed Charles Webster (Cambridge Cambridge University Press, 1979), pp 165–235, Porter, ed , *Patients and Practitioners* For case records as sources, see Michael MacDonald, *Mystical Bedlam Madness, Anxiety, and Healing in Seventeenth-Century England* (Cambridge Cambridge University Press, 1981), E M. Sigsworth and P Swan, "An eighteenth-century surgeon and apothecary William Elmhirst (1721–73)," *Med Hist*, 1982, *26* 191–98, Irvine Loudon, "The nature of provincial medical practice in eighteenth-century England," *Med. Hist*, 1985, *29* 1–35, *idem,* "A doctor's cash book the economy of general practice in the 1830s," *Med Hist*, 1983, *27* 249–68, Edmund Hobhouse, ed., *The Diary of a West Country Physician, AD 1684–1726* (London Simpkin Marshall, 1934) Jacques Léonard, *Les Médicins de l'Ouest au XIXe siècle* [thesis] (Lille Atelier Reproduction des thèses, Université de Lille III, Paris diffusion Honoré Champion, 1978)

[9] The casebook is in Universitatsarchiv der Humboldt-Universitat in East Berlin, Democratic Republic of Germany, Nachlass Grotjahn Only this casebook of Alfred Grotjahn is included in the collection All references to diagnoses, patients, and treatments by Grotjahn derive from the casebook unless otherwise stated

[10] The definitive biography is Dietrich Tutzke, *Alfred Grotjahn* (Leipzig Teubner, 1979) For Grotjahn's significance in social medicine, see Erna Lesky, ed , *Sozialmedizin Entwicklung und Selbstverstandnis* (Darmstadt. Wissenschaftliche Buchgesellschaft, 1977) For correctives to Tutzke, see Roth, "Schein-Alternativen," and Weindling, "Soziale Hygiene" For further political dimensions, see Alfons Labisch, "Neue Quellen zum gesundheitspolitischen Programm der MSPD von 1920/22," *Internationale Wissenschaftliche Korrespondenz zur Geschichte der Arbeiterbewegung,* 1980, *16* 231–47

[11] J. Wolff, *Der praktische Arzt und sein Beruf Vademecum fur angehende Praktiker* (Stuttgart, 1896)

Berlin physician Max Marcuse published records of consultations between 1911 and 1913 regarding patients' methods of birth control in order to demonstrate that the government misunderstood the implications of the use of contraceptives for the birth rate.[12]

Published case records are a distinct genre. Barbara Duden has analyzed cases of Johann Storch, a physician in Eisenach in the early eighteenth century, to understand Storch's perception of his patients' bodies.[13] While casebooks from other countries have been examined, only two German manuscript casebooks have been analyzed.[14] These derive from a rural practice in the Harz in the early nineteenth century and a practice on the fringes of an industrializing city, Magdeburg, in mid-century. Alfred Grotjahn's casebook exemplifies an inner-city practice at the end of the century. This casebook can be regarded as providing crucial insight into Germany's transition from a rural to an urban society.

The first casebook, that of Grotjahn's grandfather, Johann Heinrich Christoph Grotjahn (1794–1874), records a country practice between 1833 and 1844. Dietrich Tutzke and R. Engel have analyzed 11,815 consultations that took place between 1833 and 1839. J. H. C. Grotjahn came from a shoemaker's family and had initially trained as *Wundarzt* (a type of surgeon—a grade abolished in 1850) before qualifying as *Arzt* or physician. The practice was taken over by his son, and then passed to Alfred Grotjahn's cousin. Alfred Grotjahn disapproved of his father's practice of prescribing considerable quantities of drugs; he preferred his cousin's cautious therapeutic nihilism. Nevertheless, he considered that he learned more from his father's practice than from his university education, in which bacteriology and experimental methods were emphasized.[15]

The second casebook describes the practice of Gustav Heinrich Goedel (1836–1902) on the fringe of industrializing Magdeburg. J. Wolff and H. P. Wolff have analyzed this book. Between November 1861 and December 1862, Goedel held 745 consultations with 455 individuals and families.[16]

To these analyses can be added a few biographical accounts by practitioners. For example, during Robert Koch's heroic *Wanderjahre* from 1866 to 1872, he moved his practice five times in as many years owing to the difficulties of combining a part-time post with the necessity of an assured income.[17] Alfred Grotjahn's start in medicine contrasted to Robert Koch's in that Grotjahn chose for a combination of political and academic reasons to remain in the city where he had studied. That this was a feasible choice depended on a variety of factors, which might be taken as being of more general importance when considering the issue of professionalization

---

[12] Zentrales Staatsarchiv, Dienststelle Merseburg Rep 76 viii A Nr 647 Beteiligung von Medizinalbeamten an politischen Bewegungen Bd 2, 1891–1903, Merseburg, Democratic Republic of Germany, Max Marcuse, *Der Eheliche Praventivverkehr Seine Verbreitung, Verursachung und Methodik Dargestellt und beleuchtet an 300 Ehen* (Stuttgart Enke, 1917), R.P Neumann, "Working-class birth control in Wilhelmine Germany," *Comp Stud Soc Hist*, 1975, *20* 408–28

[13] Barbara Duden, "Die Praxisleitenden Vorstellungen eines Eisenacher Arztes vom Korper und die Klagen seiner Patientinnen um 1730" (Ph D diss, Technische Universitat Berlin, 1985)

[14] Dietrich Tutzke and R. Engel, "Tatigkeit und Einkommen eines Allgemeinpraktikers vor der Mitte des 19 Jahrhunderts—Ergebnisse einer historisch-statistischen Analyse," *Zeitschrift fur die gesamte Hygiene*, 1978, *24* 460–65, J Wolff and H P Wolff, "Das Profil einer arztlichen Allgemeinpraxis im Jahre 1862," *Deutsches Gesundheitswesen*, 1979, *34* 568–71

[15] Tutzke and Engel, "Tatigkeit."

[16] Wolff and Wolff, "Profil."

Assumptions about the influence of the medical profession have been made from statistics regarding the distribution of physicians among patients. We know that in Berlin in 1869 there was one physician for every 950 inhabitants, and that the ratio had dropped to one in 870 by 1896, when there were 1,814 physicians for a population of 1,579,244. In Berlin doctors tended to concentrate in the upper Friedrichstrasse near the *Charité* (state hospital) clinics, and westward, in the newly fashionable center between the Potsdamer Platz and the Zoo. This suggests that patients tended to be drawn from the upper classes, from which physicians also were recruited.[18] Casebooks might be seen as a corrective to deductions as to the status of the profession. A single casebook can only be regarded as very partial evidence of professional conditions, or of the complete range of health care in an area. But it can reveal facets of physician-patient relations which are lost sight of in more general studies. These relate to the social composition and development of a practice, to overall income and the costs of particular treatments, to diagnostic categories, to frequency and methods of treatment, and to the balance between home and surgery consultations.

The complexity of issues involved in medical practice is vividly portrayed by the dedication in Grotjahn's book. It was inscribed on 28 September 1896 by Grotjahn's father, from whom the book was a gift. He drew a parallel between science and religion, advising belief, then skepticism, and, finally, personal conviction:

> One should listen to patients without letting them talk too much, although too much talking showed that little was wrong. The good physician needed much science, but the originality of a poet; the diversity of a charlatan, but to remain honourable. Indeed the full book should bring not only property and money, but also personal fulfillment

These paradoxes suggest that a broad range of factors could contribute to a physician's success. It is not possible to judge professional conduct merely by referring to contemporary medical science as if it were divorced from patients' expectations, competition from unregistered practitioners, and broader cultural concerns. Nor is it easy to quantify the process of professionalization by referring to numbers, and distribution of physicians, income, and the growth of a market for professional services. A focus on the hallmarks of professionalization—such as the regulation of admission to practice, dominance over other groups offering medical treatment, and the imposition of a unified social status for members of the profession—might cause other significant but less measurable factors to be overlooked. These include family background and personality of the physician, types of treatment expected by the patient, and the circumstances of a specific locality.

---

[17] Bruno Heymann, *Robert Koch,* 1 vol in 2 parts (Leipzig Akademische Verlagsgesellschaft, 1932)

[18] Manfred Sturzbecher, "Zur Statistik der Arzte in Berlin," *Berliner Statistik,* 1974, *28* 1–7, Johannes Riger, *Das Medicinische Berlin* (Berlin Staude, 1873), *Medizinal-Kalendar fur das Jahr 1897* (Berlin August Hirschwald, 1897) On medicine in Berlin, see Sturzbecher, *Beitrage zur Berliner Medizingeschichte* (Berlin Historische Kommission zu Berlin, 1966)

LOCAL CONDITIONS

Grotjahn's opinions on social reform, heredity, and social medicine were well developed by the time he opened the practice in 1896. He frequented the "red salon" of the mathematician Leo Arons In 1895 he received his introduction to medical practice by serving as locum tenens for Ignaz Zadek, the leading socialist doctor in Berlin. He attended Gustav Schmoller's social science seminar at the University of Berlin beginning in 1902, when he also published a review of literature in social hygiene with Fritz Kriegel, who lived in the nearby Oranienstrasse. Social and academic concerns explain why Grotjahn wished to remain in the center of Berlin, but he observed that it was a daring move to set up practice close to the city's center, where there were rising numbers of physicians and a falling birth rate. However, the increase in numbers of specialists and the new opportunities provided by panel practice made the move less risky.[19]

The area where Grotjahn practiced—the Luisenstadt—contained a mixture of craftsmen and people from the middle class. It contrasted to new working-class suburbs in Berlin which were dominated by industries like Siemens and the Allgemeine Elektrizitäts-Gesellschaft. It is important to take account of local conditions, since two out of three of his patients came from the Kommandantenstrasse, the street where Grotjahn practiced, and two adjoining streets. Given that in 1897 there were ten other physicians on the Kommandantenstrasse, which contained ninety-one houses, and considering the area's average of sixty inhabitants per house (a relatively low density), it appears that there were only five hundred potential patients per physician in the locality.

Hygienic conditions were improving. In this district, only 19 percent of homes had water closets in 1875, but 86 percent had them in 1890. Mortality per one thousand had fallen from twenty-six in 1875 to seventeen in 1890, suggesting that people were making more frequent visits to the physician.[20]

---

[19] Alfred Grotjahn, *Erlebtes und Erstrebtes Erinnerungen eines sozialistischen Arztes* (Berlin F.A. Herbig, 1932)

[20] Spree, *Soziale Ungleichheit,* p 183 On social conditions, see Gesine Asmus, ed , *Hinterhof, Keller und Mansarde· Einblicke in Berliner Wohnungselend 1901–1920* (Reinbek Rowohlt, 1982)

Although the incomes of area residents generally remained low, smaller families and the availability of sickness insurance permitted more frequent visits to the physician. Grotjahn's lowest fee was one mark. This would be a substantial sum for a tailor, who might earn twenty pfennigs an hour, but posed no obstacle when paid by a sickness fund.[21] The patient records show that although Grotjahn was presented with much disease caused by poverty and bad living conditions, frequent consultations charged mostly at the minimum rate could make the practice pay. Of 7,500 consultations between 1896 and 1906, only 1,420 were home visits, and 60 were evening or night calls. This contrasts to the predominance of domiciliary visits in the two earlier casebooks and suggests a more rational use of time by the physician. The transition from a *Besuchspraxis* (based on home visits) to a *Sprechstundenpraxis* (based on surgery consultations) marked a new spatial context in which the physician could exert increased authority and administer treatments. Apparatus and diagnostic tests reinforced the image of scientific expertise.[22]

Family circumstances contributed to Grotjahn's decision to open a practice. In part the reasons were financial: Grotjahn received the initial capital from his father. It took him two years to recover the initial capital outlay. The choice of area was influenced by Grotjahn's aunt who lived at Kommandantenstrasse 27, where he opened the practice.[23] Yet personal connections did not substantially affect the development of the practice. I can identify only a few patients who came as friends or colleagues. They were Johannes Gaulte, a student friend who became an author and artist. Arthur Spiethoff was a colleague from Schmoller's social science seminar, and Grotjahn also treated Spiethoff's family. The Social Democratic leader Georg Ledebour was briefly a patient.

There were strong neighborhood ties in Berlin, where the medical profession organized itself into district associations. The Luisenstadt Bezirksverein was founded in 1875. In the area of the Luisenstadt (called Luisenstadt diesseits des Kanals) where Grotjahn opened his practice, there was a moderate decrease in population, in contrast to the increase in population in the working-class districts in the north and east of the city, where socialist physicians like Max Marcuse found their niche. The population in the Luisenstadt diesseits des Kanals fell from 114,933 in 1895 to 113,072 in 1899. Of 309 addresses for Grotjahn's patients in the casebook, 93 were from the Kommandantenstrasse, where Grotjahn practiced, 47 from the adjoining Kurassierstrasse, and 41 from the parallel Alte Jakobstrasse. Nearby streets housed sizeable numbers: 18 came from the Neue Grünstrasse, 13 from the Oranienstrasse, 12 from the Alexandrinenstrasse, and 8 from the Beuthstrasse. Eleven more-distant streets provided 2 patients per street, and sixty streets yielded only 1 patient per street. The practice shows a concentration of patients from the immediate vicinity. Taking one of the administratively smaller municipal districts, *Stadtbezirk* number 128, which included Grotjahn's part of the Kommandantenstrasse, the whole Kurassierstrasse, and a large proportion of the Alte Jakobstrasse, one finds only a 4 percent decrease in the population of 4,111 in 1895—to 3,945 in 1900—a far less drastic reduction than in the city's center (34.5 percent) or in neighboring districts (between 13 and 20 percent).[24] Birth and death rates varied greatly in the different urban districts.

---

[21] For the study of household expenditures, see the forthcoming article by Armin Triebel in *The Family, Health, and Work in the First World War*, ed Jay Winter and Richard Wall (Cambridge Cambridge University Press, 1987)

[22] Huerkamp, *Aufstieg der Arzte*, pp 119–26

[23] Grotjahn, *Erlebtes*, p 84

Other medical institutions in the immediate area included a *Kaltwasserheilanstalt* (cold water hydrotherapeutic institute) at Kommandantenstrasse 9. It had been founded by a hydropathic doctor, Beck, in 1838, and was run by an association, the *Verein der Wasserfreunde.* Although Grotjahn referred a patient to this association on only one occasion, he frequently recommended baths (hot, cold, or salt) as treatment. Fierce competition from a range of unorthodox practitioners must be assumed. There was a municipal orphanage in the Alte Jakobstrasse, and a convalescent home, *Siechenhaus,* in the Oranienstrasse, but these did not impinge on Grotjahn's practice. On twelve occasions Grotjahn referred patients to the somewhat more distant clinics and hospitals (see table 1). That the number of practitioners on the Kommandantenstrasse fell from eleven in 1897 to seven in 1902 suggests fierce competition between practitioners, as well as the necessity of satisfying patients in order to succeed.

Competition was offset by specialization and strengthened ties of collegiality. The number of specialists in the area was increasing. Two of the physicians became specialists: Julius Lilienthal a dermatologist, and Simon Vogel a gynecologist. Grotjahn referred patients twice to each of them (table 2). Increasing specialization meant physicians complemented each other in their services, and it also broadened the catchment area for patients.

Table 1. Hospital Referrals by Alfred Grotjahn, 1896–1906

Charité	1
Frauenklinik	2
Poliklinik	3
Augusta Hospital	1
Klinik, Ziegelstrasse	1
Unspecified	4
Total	12

---

[24] "Statistik des Jahres 1896," *Statistisches Jahrbuch der Stadt Berlin,* 1898, *23* 37, 49, "Statistik des Jahres 1905," *Statistisches Jahrbuch der Stadt Berlin*

Table 2 Doctor Referrals by Alfred Grotjahn, 1896–1906

	Number of Referrals	Date of Qualification	Address	Specialty
Alfred Blaschko	2	1881	Neue Jakobstrasse 1	Dermatologist
to/from M Bloch	3	1890	Kommandantenstrasse 5a	
Hesse	2			
Alfred Hirschmann	1	1896	Oranienstrasse 75	Ear, nose and throat
Kloth	1			
Robert Koch	1	1866	on 7.x.97 "Konsilium mit Geh S. R. Koch"	For heart disease
S. R. Kreischa(?)	2			
Max(?) Lewin	1			
Julius Lilienthal	2	1889	Kommandantenstrasse 33/46	Dermatologist
Professor Hermann Senator	1	1858	Charité Poliklinik	Internal medicine
Simon Vogel	2	1891	Kommandantenstrasse 83	Gynecologist
to/from Georg Zepler	3	1888	Charlottenburg	Gynecologist
Total	21			

Nearby, in the Neue Jakobstrasse, Alfred Blaschko (another pioneer of social medicine) had a thriving dermatology policlinic. Grotjahn derived considerable benefit from a neighboring dental surgeon, *Zahnarzt* Ritter, for whom he regularly administered anesthetics. In 1897, administration of anesthesia in thirty-seven cases earned him 113 marks When Grotjahn married in 1900, he remained in the locality of the Luisenstadt, moving to a corner residence on the intersection of the Alexandrinnenstrasse and Alte Jakobstrasse.

The advantages of specialized practice were such that from 1906 he described himself as a *Nervenarzt* (neurologist). These circumstances support Huerkamp's observation that by the turn of the century there was increased co-operation among physicians and a need was appreciated of maintaining mutual respect among colleagues. In 1909, 22.8 percent of German physicians were specialists, and the percentage was greater than 40 percent in cities. Specialization provided a basis for extending the scope and prestige of a practice. The choice of neurology suggests Grotjahn was successful in combining his intellectual ambitions with his professional career. Neurology was an ideal link between biology and social science, which were Grotjahn's main areas of academic interest. Specialization enabled co-operation among physicians without over-duplication of services.[25]

FEES

It was not economically possible for Grotjahn to rely totally on the practice. He supplemented his income by working as an assistant to a neurologist, Emanuel Mendel, in Mendel's private policlinic. This was a typical step for young physicians. Experience as a clinical assistant provided additional income, practical experience after the highly theoretical university course, and further education on which to base specialization. Mendel was a distinguished university professor and a progressive liberal in politics; he was also known for his therapeutic nihilism, his reluctance to subject patients to protracted and complex sources of treatment.[26] He can be seen as a formative influence on Grotjahn, who became interested in neurological aspects of diseases. Therapeutic nihilism was to be a feature of eugenics as the conviction grew that treatment only served to perpetuate the congenitally weak.

Grotjahn's work for Mendel is an example of a physician having more than one source of income. Physicians liked to acquire a multiplicity of responsibilities and sources of income. They were increasingly amassing responsibilities, as they provided services to a variety of institutions and organizations. Many in the profession resented being subjected to fixed terms of employment by sickness insurance funds. A multiplicity of incomes meant that a physician was not dependent on a single sickness insurance fund. The growing market for medical care had to be kept free, allowing patients the right to choose their practitioner and physicians the right to treat with as few restrictions as possible. Within Grotjahn's practice there were diverse sources of fees. Medical examinations for an insurance company were lucrative. As table 3 indicates, certificates for official and sickness insurance purposes were frequently needed.

---

[25] *Ärztliches Handbuch nebst Verzeichnis der Arzte* (Berlin, 1914), vol 8, p 12, Huerkamp, *Aufstieg der Arzte*, pp 177–85

[26] Theodor Kirchhoff, *Deutsche Irrenarzte Einzelbilder ihres Lebens und Wirkens*, 2 vols (Berlin J Springer, 1921–24), s v "Emanuel Mendel," 2 161–65

The economics of Grotjahn's practice show that while payment was mostly on a fee for service basis, the fees were paid by a variety of organizations. In only one case did a family pay Grotjahn a retainer of between seventy-five and one hundred marks per year. The organizations that contributed to the success of the practice reflect the mixed middle-class/artisan nature of the area. Grotjahn had thirty-two patients from an association for the welfare of servant girls. Twenty-three percent of the houses in the area had servants in 1895.[27] Pages in the casebook were reserved for these funds.

Table 3 Treatments and Other Actions by Alfred Grotjahn, 1 October 1896 to 31 December 1897

23	Bandage
11	Certificate (for, e.g., school authorities, disinfection, drunkenness)
9	Examination (for, e.g., sickness insurance)
8	Massage, anesthetic (e.g., chloroform, brom ethyl), bandage
6	Baths (salt, hot, cold)
5	Immunization, morphine, death certificate
4	Arrowroot (for infant diarrhea), tamponada (for post-abortion and post-natal bleeding and salpingitis)
3	Faradic treatment, oil of camphor, opium
2	Chromic acid (for ulcus molle), electrotherapy, fresh air, gargle, incision, injection (of anti-diphtheria serum), iodineglycerin (for laryngitis), enema, urine test
1	Diet sheet, embrocation, albumin [examination], removal of pus, question about maternity hospitals, hypnosis, ear syringe, plaster, powder with iodoform, washing out of vagina, temperature

---

[27] Spree, *Soziale Ungleichheit*, p. 189

In 1897 Grotjahn became *Vertrauensarzt* (certifying physician) for the Shoemakers' Sickness Fund. In table 4 it can be seen that shoemakers formed the largest occupational group of male patients Grotjahn saw (forty-three); the next largest was made of tailors, of whom twenty were treated.

In entries for individual patients, Grotjahn occasionally noted when fees came from sick funds. This raises the question of whether many more fees were paid by sick funds than were noted. Given that this district had a slightly declining population but was viable for opening a practice, it might confirm the thesis of Spree and Huerkamp that sickness insurance was a major factor in extending the market for medical care. Berlin had a far higher proportion of the population insured than did the rest of Germany. In 1905, 36.1 percent of Berliners were insured, whereas in Germany as a whole the proportion was 18.4 percent. The predominance of male over female patients in Grotjahn's practice also suggests the importance of insurance, as insurance covered only the worker, not dependents.[28]

Grotjahn's fees had to be modest to attract uninsured women and chil-

Table 4. Occupation of Alfred Grojahn's Patients, 1896 to April 1899

Middle and Upper Classes (Males)	
Businessman	29
Rentier	5
Druggist, engineer, painter	3
"Dr.," manufacturer, optician, student, dental surgeon	2
Apothecary, architect, bank official, "Baron," construction engineer, sculptor, bookkeeper, photographer, financial official, junior lawyer, author	1
Total	64
Workers/Craftsmen (Males)	
Shoemaker	43
Tailor	20
Butcher, worker	6
Barber, goldsmith	3
Postman, galvanizer, mechanic, porter, smith	2
Baker, messenger, bookbinder's apprentice, printer, ciseleur, turner, fireman, money order postman, servant, tinsmith, linoleum layer, lithographer, usher, sailor, bricklayer, cutler, furniture polisher, musical instrument maker, telegraph assistant, packer, slippermaker, saddler, conductor, "Author" (= Ledebour), master paperhanger, gilder, foreman, sergeant, clerk	1
Total	120
Middle Class and Working Class (Females)	
Maid	24
Dressmaker	5
Salesgirl	3
Hairdresser, manageress	2
Artist, bookbinder, clerk, barmaid, ready-to-wear clothing retailer (Confektionsdame), conservatory student, midwife, waitress, cook, seamstress, wig maker, teacher, charwoman, soap trader, knitter, dancer, washer woman, dental surgeon (Zahnarztin)	1
Total	52

---

[28] *Ibid*, p 182

dren as patients. Most fees varied from one to three marks for a consultation in Grotjahn's surgery or a home visit, the home visits costing nothing extra except in the evening (three marks) and at night (six marks). Of approximately 7,500 consultations, 1,420 were daytime home visits. There were only 30 home visits in the evening and 30 at night This practice contrasts sharply with the long distances traveled by Gustav Goedel and Grotjahn's grandfather to visit patients at home. Until the end of 1896 Grotjahn earned only 375 marks, but during 1897 he earned 1,703 marks. Traditionally bills were rendered in the new year. Although Grotjahn often followed this convention for middle-class families, or for lengthy treatments, most of his patients paid immediately In a few instances he had to resort to a lawyer, and occasionally the bill was left unpaid. Public-spirited actions also brought remuneration: Grotjahn received a police reward for reviving someone who had apparently died.

That Grotjahn's fees were relatively moderate is suggested by the official scale of fees allowing between two and twenty marks per home visit, and between one and ten marks for treatment in the surgery. A certificate cost from three to ten marks; Grotjahn charged three marks Electric therapy cost between two and ten marks, Grotjahn charged two or less. His fees never approached the maximum of ten marks for bleeding after birth or abortion. I would therefore suggest that Grotjahn established himself by providing frequent consultations at relatively cheap rates. Baas considered that German physicians earned far less than their English colleagues. He calculated that in 1894, 80 percent of Berlin physicians earned up to 3,000 marks. Although Baas certainly underrates the amount that a successful university clinician could earn, his estimate is appropriate for Grotjahn.[29] Relatively few gifts were noted in the casebook: a tie, a pair of boots from a shoemaker, and a picture from an artist.

With regard to the 203 children he treated, Grotjahn did not specify age or sex in all cases. However, 8 were under four months, 40 were described as infants or under two years old, 30 were between two and five years, and 77 were between six and sixteen; the remainder were not identified by age. In contrast to the interest he took in the neurological and psychiatric features of adult complaints, Grotjahn did not seem very interested in these children. Only in one case did he note that the infant was bottle fed, and in another that the mother could no longer breast-feed. A large proportion of the younger children were suffering from diarrhea and cramps, for which arrowroot was administered. Grotjahn's lack of interest in infant care contrasted to the voluminous surveys of infant feeding carried out by the municipal statistician Richard Boeckh from 1885 until the First World War.[30]

---

[29] J. H Baas, *Die geschichtliche Entwicklung des arztlichen Standes und der medicinischen Wissenschaften* (Berlin, 1896), p 348 For the *Gebührenverordnung* (scale of fees) of 15 May 1896, see the *Medizinal-Kalendar* for that year

[30] Spree, *Soziale Ungleichheit*, p 67

Most women were entered in the casebook as dependents. Of the 121 female adult dependents listed, there were sixty wives, eleven mothers, three graduates, eighteen daughters, thirty-eight servants, and three fiancées. Only fifty-two women had occupations listed, and of these perhaps only three (a teacher, a dentist, and an accounts clerk) were bourgeois.

Forty-nine working women received an entry in the book under their names. Their health was relatively poor. For example, there were seven seamstresses: they suffered from various disorders suggesting poor living and exhausting working conditions: edema of the face and hands, and in the feet; chlorosis, headache and nervousness; hysterical cramp; bronchitis and stomach cramp; influenza; abortion. Abortion was noted fourteen times, but no distinction was made between criminally induced and spontaneous abortion. In only one case did Grotjahn note that an inquiry was made about contraception. Contraceptives were locally available at the Sanitätshaus Friedrich Schneider, Alte Jakobstrasse 8.[31]

THERAPIES AND THEORIES

Grotjahn was particularly interested in relating medicine to eugenics and social reforms. As a student, Grotjahn had been a friend of the then socialist and writer on race, Ludwig Woltmann, who edited the *Politisch-Anthropologische Revue* starting in 1902. Other eugenically oriented medical practitioners in Berlin in the 1890s included Alfred Ploetz and Pauline Ploetz, Agnes Bluhm, Alfred Blaschko, and Adolf Gottstein, who had large panel practices financed by insurance fees. Physicians who were economically hard-pressed often attempted to move away from medicine into journalism or the social sciences, like Alfred Ploetz and Franz Oppenheimer, or to develop municipal health services, like Gottstein and Grotjahn. Another colleague of Grotjahn's, Wilhelm Schallmayer, had condemned therapeutic advances as furthering physical and moral degeneration; he also urged that physicians serve as state officials. Eugenics offered a rationale for therapeutic nihilism and the extension of the physician's role as a public health official.[32]

Grotjahn's interest in eugenics grew from his early concern with hereditary and social factors in disease. He saw "reproductive hygiene" as a means of improving the social welfare of families. Preoccupation with racial degeneration motivated his attempt in 1894 to write a thesis on social environment and venereal disease in the clinic of Georg Lewin. The correlation of syphilis with patients' social environment proved unrewarding, and instead Grotjahn wrote up a rare case of purpura rheumatica in the dermatology clinic of Ernst Schweninger. He used his savings from the practice to visit London in 1902 to study the degenerative effects of industrialization.[33]

---

[31] The shop also published literature on contraception

[32] On Grotjahn's eugenics, see Gerhard Schulze, "Kritik der gesellschaftstheoretischen Grundlagen der burgerlichen Sozialhygiene am Beispiel der Arbeiten ihres Begrunders Alfred Grotjahn" (Phil. diss , Leipzig, 1964) On Schallmayer, see Sheila Weiss, "Race Hygiene and the Rational Management of National Efficiency Wilhelm Schallmayer and the Origins of German Eugenics, 1890–1920" (Ph D diss , Johns Hopkins University, 1983)

Table 5 gives an impression of the incidence of diseases with which Grotjahn was confronted. It shows the prevalence of sexually transmitted diseases with gonorrhea as the largest category, and a substantial number of cases of syphilis. Many of the diseases Grotjahn diagnosed and treatments

Table 5 Diagnoses by Alfred Grotjahn, 1 October 1896 to 31 December 1897

16	Gonorrhea ("chron.," "acuta," "recidiv", Tripper—3x)
13	Diarrhea
11	Angina
8	Bronchial catarrh, diphtheria, pregnancy (*Graviditat/Schwangerschaft*), influenza, wounds, sprained or dislocated limb
6	Vomiting and diarrhea, stomachache, menstruation
5	Cold, cardiac weakness, cramps (all children), ulcara molle dermatol, laryngitis, syphilis (Lues), chlorosis (2x *Bleichsucht*)
4	Apoplexy, bleeding (from uterus), bronchitis, cephaleas, eczema, syphilis (Lues), measles, edema, death, phthisis, rheumatism
3	Asthma, chlorosis, inflammation, fracture, fatty heart (cor adiposem), foreign body (corps alien), hypochondria, catarrh, gastrointestinal catarrh, morbilli, pharyngitis, smokers' inflammation/catarrh, German measles, scarlet fever, pain, constipation
2	Abortus, angst, loss of appetite, arthritis, occupational neurosis, flatulence, anemia, bubo, epilepsy, premature birth, rheumatism of the joints, heart attack, heart palpitations, coughing, nephritis, neurasthenia, oophorosalpingitis, fever (rheum), back pain, tonsillitis, ulcer, vitium cordis, sore tooth
1	Adenitis, adipositas, abscess, old age, seizure, drug rash, ascites, tape worm, stomach complaint, bladder catarrh, debility of the bladder, appendicitis, blood in urine, brachycephaly, bronchopneumonia, furuncle, conjunctivitis, gut catarrh, gut colic, diuresis, gland, vomiting, exhaustion, erythema, miscarriage, obesity, crab lice, gallbladder, gastritis chron., gonorrhea phobia, hemorrhoids, hemothorax, hemiplegia, herpes zoster, hyperidrosis, hystero-hypochondria, intercostal neuralgia, cramp, varicose veins, scratching wound, lumbago, general debility, bleeding from the lung, lymphangitis, pulmonary affection, stomach cramp, malaria, abscess on tonsils, menopause, migraine, maltreatment, fly sting, multiple sclerosis, nervous complaint, neuritis cranialis, neuritis de plexum, nicotine poisoning, nosophobia, fainting, orchitis, inflammation of the ear, otitis media, paralytic attack, phthinoid chest, parasite, pedicule, perityplitis, phlebitis, phlegma on the leg, pleuritis, pneumonia, prurigo, rickets, chapped lips, sleeplessness, shock, pregnancy pains, swelling, dizziness, stiff neck, stomatitis, tentamen suicida, uterine complaint, urticaria, poisoning, vertigo, confusion, soft chancre, gum inflammation, cell tissue inflammation

---

[33] Grotjahn, *Erlebtes*, pp. 77–81, 117

he recommended can be related to Grotjahn's interests in heredity, alcoholism, the psychology of patients, and occupational diseases. Grotjahn's rationale for social hygiene was based on the social and eugenic factors evident in particular diseases; by way of contrast, Alfons Fischer developed an approach to social hygiene based on the living conditions of particular age groups and classes.[34] To relate Grotjahn's broader views to his case records is legitimate, given his concern with the social etiology of illness. Not surprisingly, one finds bronchitis and pulmonary tuberculosis among the more frequently noted illnesses in the casebook (occurring in forty-one patients).

Grotjahn's primary interest was in the effect of poor living and working conditions on a psychologically inferior constitution. He was fascinated by nervous and mental diseases. Like other pioneers of eugenics—Abderhalden, Forel, Gruber, Ploetz, and Rüdin, for example—Grotjahn was greatly concerned with alcoholism. He published a social hygienic study of alcoholism in 1898. He believed the abuse of alcohol was predisposed in psychologically degenerate persons, and was associated with chronic diseases and a "psychopathic" constitution. He integrated socioeconomic factors with heredity. He recognized that for the proletariat, alcoholic spirits were a means of overcoming a sense of hunger and exhaustion. Mentally, alcoholism could cause a range of nervous disorders and, ultimately, lead to total degeneration. Pathologically, alcoholism caused *Fettherz,* a diagnosis made by Grotjahn signifying fatty degeneration of the heart as well as a range of other pulmonary, circulatory, and kidney diseases. The casebook recorded eight cases of alcoholism, and one of alcoholic epilepsy. Excessive beer drinking was noted for one patient with a weak heart. Grotjahn's eugenic views on alcoholism were illustrated by a family tree of a patient whom he treated on seventy-two occasions and considered deceitful and alcoholic; he found that alcoholism, suicide, and bankruptcy ran in the family[35]

Grotjahn was interested in chlorosis as both a nervous condition and a socially caused condition. Chlorosis and *Bleichsucht* (an alternative term for chlorosis) were diagnosed in eleven females and two males. Blood deficiency was separately noted in two more cases. Grotjahn distinguished between two types of chlorosis. The first was an anemia affecting mainly young women during puberty. The second type was not so much a disease of the blood; rather, it was brought on by the exhaustion of working women. He regarded this as an occupational disease, and wrote on it in his tract of the diseases of tailors and seamstresses.[36] The casebook shows that neurasthenia was diagnosed in three men and three women, and nervousness and excitement in another four cases. There were five cases of hysteria. In addition to the thirty-eight cases of venereal disease, three observations were made of phobia and hypochondria in patients fearing venereal disease, and there were further comments on phobias. Of the eleven diagnoses of headaches and cephaleas, eight were in women.

---

[34] On Grotjahn and Fischer, see Klaus-Dieter Thomann, "Die Zusammenarbeit der Sozialhygieniker Alfred Grotjahn und Alfons Fischer," *Medizinhistorisches J*, 1979, *14* 251–74

[35] Alfred Grotjahn, *Der Alkoholismus, nach Wesen, Wirkung und Verbreitung* (Leipzig Wigand, 1898)

[36] Alfred Grotjahn, *Die Berufskrankheiten der Schneider und Textilarbeiter* (Berlin Paul Singer, 1913) On chlorosis, see Carl Brammer, "Die Geschichte der Chlorose" (Med Diss, Medizinische Akademie, Dusseldorf, 1935), W M Fowler, "Chlorosis an obituary," *Annals Med Hist*, 1936, n s *8* 168–77, Karl Figlio, "Chlorosis and chronic disease in nineteenth-century Britain the social constitution of somatic illness in a capitalist society," *Soc. Hist*, 1978, *3* 167–97

There was a great deal of attention paid to minor ailments. Bandaging and dressing of wounds after minor accidents was the most frequent type of treatment (see table 3). A fracture required twenty-one visits. Other treatments involving little in the way of medication were baths, bed rest, gargles, and exercise. For example, Grotjahn recommended that a patient take four weeks of fresh air at the expense of the sick fund With regard to drugs prescribed, morphine figures frequently, but on the whole he was not in favor of lavish prescribing. For a case of chlorosis, oil of camphor twice daily was recommended. Such therapeutic caution might be seen as characteristic of the eugenic conviction that therapy permitted degenerative conditions to be inherited by future generations. Protracted courses of treatment were a feature of all types of complaints. A case of diphtheria required ten visits, scarlet fever eleven visits, and phthisis twenty-eight visits and a referral to Robert Koch. A chronic disease like gonorrhea resulted in twenty visits. In another such case, thirty marks were charged for a course of eighteen consultations.

Such protracted courses of treatment were also followed when hypnosis, faradic treatment, massages, and baths were recommended. Hypnosis was used on seven women patients and three male patients, for up to twenty sessions per patient. Grotjahn had learned the technique at the clinic of the distinguished neurologist Oskar Vogt. He recommended hypnosis for headaches, pains in limbs, and confused mental states, and considered himself adept at the technique. A state survey on the use of hypnosis in 1901 found that it was very rarely used but was not harmful in itself. Hypnosis reflects Grotjahn's neurological interests. However, the technique was too time consuming, and he gradually gave it up.[37]

Faradic treatment reflected Grotjahn's neurological concerns. As with hypnosis, he applied it to more women patients (eight) than men (four). It was used for hysteria and hysterical paralysis for up to twenty sessions. Massage was employed on at least eight patients, for up to seventeen sessions for such complaints as pains in limbs. Use of hypnosis, faradic treatment, and massage indicates Grotjahn's readiness to build up his practice by protracted series of treatments. Each session was relatively inexpensive, costing one mark and fifty pfennigs. In themselves these techniques differed little from what nature therapists and other unorthodox practitioners might offer. The therapeutic dividing line between the therapies of the medical profession and those of other practitioners was often indistinct. This was also the case in sanitarium treatments for tuberculosis, where dietary and fresh air therapies were employed.

---

[37] Grotjahn, *Erlebtes*, p 87

Use of treatments like hypnosis accord with interpretations that the medical profession sought new forms of dominance by exploiting new medical specialties and techniques. Grotjahn disliked new treatments based on application of the methods of experimental science, although he did use the new diphtheria serum. He preferred to develop social medicine, and he contributed much to the genesis of a new discipline of social hygiene based on social science and biology. Yet his apparently progressive views on social hygiene retained traditional views on the importance of a healthy way of life, and they were combined with eugenic emphases on heredity and degeneration.

CONCLUSIONS

Regarding theories of professionalization, Grotjahn's practice confirms that physicians claimed new areas in which to exercise their expertise during this period. Eugenics can be interpreted as the ideology of an expanding medical profession. A corollary to the extension of medical powers was the extension of the market for medical care. This was due to the growth of health insurance, as well as, beginning in the 1890s, the new prestige of public health associations dealing with a range of chronic and social problems like tuberculosis and alcoholism. Grotjahn's experience accords with this view· he was a major figure in the campaign against alcoholism, a pioneer of social hygiene, and a beneficiary of insurance in his practice.[38]

Grotjahn's practice and his intellectual interests reinforced each other in many ways. Factors contributing to his success were family interests and local circumstances. His family background—he was the third generation of physicians in his family—provided the initial support for his venture. The area he chose in Berlin, which provided a mixture of artisan and middle-class patients, accorded with contemporary preferences for hedging bets when starting up in practice by securing a variety of incomes. Starting up in practice did not condemn the practitioner to an "Arme-Leute-Praxis" (working-class practice), as Huerkamp has suggested.[39]

The condemnation of Grotjahn's practice as *Klassenmedizin* (reflecting bourgeois prejudices) because of his distaste for the lower classes, as Roth has speculated, can be corrected by the casebook.[40] Prolonged courses of treatment were used for patients from the artisan class as well as for those from the more prosperous occupational backgrounds. Grotjahn's theoretical writings reveal a concern with providing services that would satisfy the patient. He emphasized that the physician was to supply two types of services for patients. It was necessary to provide what was objectively needed as determined by science and experience, as well as to satisfy the patient subjectively. Sympathy with the feelings of the sick was an economic necessity owing to the competition between practitioners; in Grotjahn's case it also resulted from his concern with neurology.[41]

---

[38] Alfred Grotjahn, "Was ist und wozu treiben wir soziale Hygiene?" *Hygienische Rundschau*, 1904, *14* (no 20) 1017–32 For secondary literature on social hygiene, see Klaus-Dieter Thomann, *Alfons Fischer (1873–1936) und die Badische Gesellschaft fur soziale Hygiene* (Cologne Pahl-Rugenstein, 1980), Paul Weindling, "The Medical Profession, Social Hygiene, and the Birth Rate in the First World War," in Winter and Wall, eds , *Family, Health, and Work*, forthcoming, Alfons Labisch and Florian Tennstedt, *Der Weg zum "Gesetz uber die Vereinheitlichung des Gesundheitswesens"* (Dusseldorf Akademie für offentliches Gesundheitswesen, 1985)

[39] Huerkamp, *Aufstieg der Arzte*, p 120

[40] Roth, "Schein-Alternativen," pp 34–40

While maintaining himself with the practice, Grotjahn formulated comprehensive theories of social hygiene. It would be overstating the case greatly to say that his theories were derived solely from his practice. The cases of alcoholism and occupational diseases suggest that encounters with patients were affected by Grotjahn's dual interests in the effects of heredity and of socioeconomic circumstances. His writings on occupational diseases were profoundly influenced by the morbidity surveys of the *Leipziger Ortskrankenkasse*. His interest in the diseases of tailors arose from the many tailors he treated. Grotjahn's tendency to link his personal experiences with his general theoretical outlook was shown in his self-awareness of coming from a hereditarily degenerate family, and in his study of physicians as patients.[42]

This case study has aimed to shed light on conditions in inner-city practice in Berlin at the turn of the century; it has also attempted to relate social conditions and diagnostic categories to the developing theories of social hygiene and eugenics of the practitioner in question, Alfred Grotjahn. The professionalization of medicine links both issues. Other historians suggest that physicians enhanced their status to the extent that they shook off their dependence on patronage and were able to exert new forms of authority. The casebook of Grotjahn shows that the practice was made to pay through the conduct of frequent consultations at low rates. The survival of the practice was helped by payments from sickness insurance funds, but there were diverse types of patients and sources of income. While the physician had enhanced prestige through practice in his surgery and the possibilities of new therapeutic techniques like diphtheria serum, the arrangements suggest that patient demand and satisfaction were requirements. The majority of uninsured patients could simply change to another of the many local practitioners if they wanted. It would be interesting to know the extent to which the insured patients could exert power through the sickness insurance fund, whether by individual complaints or through the democratic structure and often politically radical administrators. Grotjahn's sympathies for his patients are suggested by his intense interest in the occupational conditions of those he treated. This evidence modifies the views of Huerkamp regarding the rising authority of practitioners, and of Roth regarding Grotjahn's extreme authoritarianism

---

[41] Alfred Grotjahn, *Ärzte als Patienten Subjektive Krankengeschichten in arztlichen Selbstschilderungen* (Leipzig Georg Thieme, 1929), pp iii–iv

[42] Grotjahn, *Erlebtes*, p 13, Grotjahn, *Arzte*

Regarding eugenics as the ideology of the emergent medical profession, more notice should be taken of the social context that gave eugenics plausibility. The diagnoses show that venereal diseases, pregnancy, and menstrual problems were major features of the practice. The eugenicists were among the first seriously to tackle the increasingly important issues of chronic conditions like sexually transmitted diseases and alcoholism. They perceived urban existence as degenerative, and spoke of their "nervous age." Ideological convictions underlay Grotjahn's interest in patients' Angst and phobia. It was also in Grotjahn's professional interest to specialize as a neurologist.[43]

The major limitation to such a casebook is that the only way of ascertaining a patient's response is to note whether treatments were continued. For those patients who were not paid for by a sickness fund, the choice to continue treatment was their own. They were, however, influenced by the physician's advice, and by a rising popular demand for medical care. As social historians have observed with regard to the debate on social control, consent was an essential element. It again suggests that one must qualify the view that patients were subordinate to the practitioner.

Grotjahn looked forward to a new science of medical psychology, and developed eugenics in highly authoritarian directions. But his belief that the physician should be a virtual Führer of the Volk depended on the idea of a popular culture of health. This complex interaction of physician and patient was expressed in his book *Physicians as Patients,* which looked forward to a modern type of psychosomatic medicine but also drew on more traditional ideas. The recommendation therein that a physician should provide satisfaction as a healer, remove subjective perceptions of aches and pains, and be an educator and spiritual counselor was reminiscent of the paternal inscription in the casebook.[44] His practice suggests that Grotjahn diagnosed and treated his patients with a diverse range of skills, ranging from hypnosis to hereditarian biology and social science. Professional practice left an indelible mark on one who was to achieve renown as a major theoretician of social medicine.

---

[43] This broader context will be discussed in Paul Weindling, *Health, Race and German Politics* (Cambridge Cambridge University Press), forthcoming

[44] Grotjahn, *Arzte,* pp 1–5

A HISTORY OF SEMITERTIAN FEVER*

Saul Jarcho

In studying concepts of disease it is appropriate and instructive for the investigator to include within his field of observation many nosographic designations that are no longer in use On another occasion I ventured to characterize these as lost, obsolete, or discontinued diseases. Among the examples then selected were serous apoplexy, incubus, and retrocedent maladies.[1]

To the catalogue of discontinued diseases we must add semitertian fever, also known as hemitritean. This disease was far commoner than any of the other three just mentioned—indeed, it was commoner than all three taken together, and an educated Roman of the first century A D. would almost certainly have refused to believe that eighteen centuries later it would be unknown. Herein lies a puzzle that demands the best efforts of the historian. The narrative is long and it is not simple.

Semitertian fever is mentioned repeatedly by Hippocrates,[2] Celsus,[3] Galen, [4] Oribasius,[5] and Aetius,[6] and also by some authors whose works are either no longer extant or are little remembered, such as the second-century physician Archigenes.[7] The poet Martial mentions the disease

---

* Parts of this essay were delivered as the John Fulton Lecture, the Beaumont Club, Yale University School of Medicine, 16 May 1986

[1] Serous apoplexy came to be understood as uremic edema of the brain Today it is classed under hypertensive encephalopathy Incubus (nightmare) is no longer regarded as attack by demons, it is thought to be a group of physiological or biochemical disturbances which register variously in electrocardiographic tracings In retrocession, exemplified by retrocedent scabies, the causative humor had been driven into the interior of the body, usually by a strong ointment Further details are to be found in Saul Jarcho, "Some lost, obsolete, or discontinued diseases serous apoplexy, incubus, and retrocedent ailments," *Trans Stud Coll Phys Philadelphia,* ser 5, 1980, *2* 241–66

[2] In subsequent footnotes, reference will be made to the Littré edition, viz Emile Littré, trans and ed , *Oeuvres complètes d'Hippocrate,* 10 vols (1839–61, facsimile, Amsterdam Hakkert, 1973–82)

[3] Celsus, *De medicina,* trans W G Spencer, Loeb Classical Library ed , 3 vols (Cambridge, Massachusetts Harvard University Press, London Heinemann, 1935–38)

[4] In subsequent footnotes, reference will be made to the Kuhn edition, viz *Galeni opera omnia,* Greek text and Latin trans by Karl Gottlob Kühn, 20 vols in 22 (1821–33, facsimile, Hildesheim Georg Olms, 1964–65)

[5] Oribasius, *Oeuvres,* ed. and trans U C Bussemaker and Charles Daremberg, 6 vols (Paris Imprimerie Nationale, 1851–76) The encyclopedic *Synagogai* of Oribasius says that the name of hemitritean fever has been given to a combination of tertian and quartan (vol 5, bk. 6, sec 23, pp 296–98), whereas the *Synopsis,* written by the same author, says that the hemitritean combines the tertian and the continued quotidian (vol 6, p 110)

[6] Aetius Amidenus, *Contractae ex veteribus medicinae tetrabiblios,* Latin trans by Ianus Cornarius (Basel Frobenius and Episcopius, 1542), bk. 2, sermo 1, chap 82, pp 234–35

[7] Eight excerpts from Archigenes are preserved by Oribasius (see footnote 5) but do not deal with semitertian fever Archigenes' concept of the disease is mentioned in uncomplimentary terms by Galen, *Commentarium II in Hippocratis liber I Epidemiorum* (Kuhn, 17A.120)

Bull Hist Med, 1987, *61* 411–430

twice.[8] A first-century practitioner named Agathinus is said to have written an entire book on the subject.[9] Thus, the record extends for virtually the entire length of Greco-Roman antiquity. Galen remarked that semitertian fever was extremely common in Rome, and he said he could fill three volumes with what commentators had written about it.[10]

To the modern reader it is evident that the ancient opinions are not fully concordant; nor are they crystal clear. As usual, the Greeks disagreed with one another.

Hippocrates says that in semitertians the fever is milder on one day and more intense on the next. This form was seen in phthisis, and the patients always did badly.[11] Hippocrates also remarked that the fever called semitertian is more often fatal than any other and that it attacked phthisical patients more frequently than any others.[12] The alleged connection with phthisis was not often remarked by later authors, despite the great authority of Hippocrates.

Celsus says that there is a very pernicious kind of *tertian* fever called the semitertian. It "does indeed recur on the third day, yet out of forty-eight hours, about thirty-six ... are .. occupied by the paroxysm, nor does the fever entirely cease in the remission, but it only becomes less violent."[13] He also says that "great care is required to avoid a mistake, for it has a number of frequently recurring paroxysms and remissions, so that it can appear to be some other class of disease "[14]

Galen explained that the semitertian is a composite of tertian fever, caused by yellow bile, and quotidian fever, caused by phlegm. In any given case the two humors might be present to an equal extent or either might predominate, and this would determine the symptoms. While a tertian mixed with a continued quotidian creates a semitertian, neither two intermittents mixed together nor two continued fevers mixed together can produce a semitertian. If bile and phlegm are present in equal amounts, the disease is an exact or exquisite semitertian.[15] To this he added, unclearly, that all things which accompany the tertian also happen in the semitertian, such as a return of fever on the third day, but that semitertians may be greatly prolonged. They can be continuous or intermittent. Extremely dangerous, they may attack the stomach, nervous structures, and other parts of the body, and may produce delirium, insomnia, and syncope. They are capable of reverting to tertians[16] It is interesting to observe that in subsequent writings on the subject the Galenic influence greatly outweighed the Hippocratic.

---

[8] Martial, *Epigrams* 2 40 and 12 90, in the second of these cases the disease is said to be severe

[9] Galen, *Commentarium II in Hippocratis liber I Epidemiorum* (Kuhn, 17A.120)

[10] *Ibid* (Kuhn, 17A.120–21)

[11] Hippocrates, *Epidemics* 1 2 (Littré, 2 608–9) See also Littré's comment, 2 531, 537, 568–69, and Galen's comment, *Commentarium I in Hippocratis liber I Epidemiorum,* sec 24 (Kuhn, 17A.67).

[12] Hippocrates, *Epidemics* 1 11 (Littré, 2 673–75) Galen's comment is in *Commentarium III in Hippocratis liber I Epidemiorum,* sec 5 (Kuhn, 17A.227–28).

[13] Celsus, *De medicina* 3 3

[14] Celsus, *De medicina* 3 8

[15] Galen, *De febrium differentiis* 2 8 (Kuhn, 7 363) and 2 9 (Kuhn, 9 369), *De crisibus* 2 9 (Kuhn, 9 673) Many post-Galenic authors distinguished the semitertian of Galen's first order (intermittent tertian plus continued quotidian) and that of Galen's second order (continued tertian plus intermittent quotidian)

Siegel pointed out that in Galen's writings "in most instances fever was not regarded as a symptom but as a disease in itself . When Galen tried to relate the various fevers to a cause, he contradicted his own statement that fever is a disease in its own right" Rudolph E Siegel, *Galen's System of Physiology and Medicine An Analysis of His Doctrines and Observations on Bloodflow, Respiration, Tumors, and Internal Diseases* (Basel and New York Karger, 1968), pp 169, 275 (referring to Kuhn, 11 17 and 7 618)

Parts of this assemblage of ancient observation and opinion are summarized in the *Oxford English Dictionary*, it defines *semitertian* as a term used in "old pathology" to signify an intermittent fever which, combining the symptoms of a quotidian and a tertian fever, consists of a paroxysm that occurs every day with a second, stronger one, every other day[17]

The roster of ancients who wrote about semitertian fever can be extended to include medieval authors such as Isaac Israeli and Avicenna.[18] But the development does not end with them.

RENAISSANCE

A major prototype of practitioners of late Renaissance medicine was Ludovicus Mercatus (1520?–1606?), an eminent clinician and a conservative, but not purblind, Galenist. The pyretology which he included in his *Praxis medica . in quatuor partes divisa* contains, at the end of a chapter on the nature and treatment of putrid fevers, a discussion "on complicated fevers and the semitertian."[19] This arrangement and placement are typical

Mercatus opens his discussion by observing that the nature and the name of the semitertian are not explained satisfactorily in the literature.[20] Indeed, Galen had expressed doubts as to the characteristics of the disease, and his opinions contain inconsistencies.[21] Some authors classed the semitertian under complicated fevers (*febres complicatas*); others put it with the combined fevers (*febres confusas*)[22] because both the bilious humor and the pituitous humor are to be found in the blood vessels.

There are four ways, Mercatus continues, in which pituitous fever can be mixed with bilious.[23] The legitimate or genuine semitertian is made up of a continuous quotidian and an intermittent tertian Moreover, the legitimate tertian can occur in three ways, according to predominance or equality of the two causative humors.[24]

---

[16] Galen, *De typis* 4 (Kuhn, 7 467–68)

[17] *Oxford English Dictionary*, compact ed, 2 vols (New York Oxford University Press, 1971), p 2724 *Hemitritaean* is defined in similar terms on p 1289

[18] Isaac Israeli [Ishaq Iśraeli], *Tratado de las fiebres*, ed José Llamas (Madrid and Barcelona Instituto Arias Montano, 1945), pp 253–56 This Spanish translation dates from the second half of the fifteenth century and is believed to be based on an Arabic text. Avicenna, *Canon of Medicine*, bk. 4, fen 1, tract 4, chaps 17–19

[19] Ludovicus Mercatus, *Praxis medica in quatuor partes divisa* (Venice Iunta, Ciottus, et Socii, 1611), bk. 6, pp 577–81

[20] *Ibid*, p 578, col 1, para B

[21] *Ibid*, para. C

[22] *Ibid*, para. D

[23] *Ibid*, para. E

In a moving passage, Mercatus says that nothing in the art of medicine is as difficult and serious as that which possesses not merely a single nature but a diverse, irregular, and combined nature. Although you attend to it very diligently and you recognize it, you will be able to treat it not at all or only with difficulty, for in the correct system of treatment, it is the prime rule and method that one of a pair of contraries drives the other out of the body and should remove the cause by ablation of itself, but it happens not rarely that opposites combine, and hence you cannot cope with one without incurring harm from the other.[25] Very often we see that nature receives greater damage from the remedy than from the sickness.

SEVENTEENTH CENTURY

In 1624, Adrianus Spigelius (Adriaan van den Spiegel, 1578–1625),[26] a famous surgeon, anatomist, and botanist, issued his book on semitertian fever, *De semitertiana libri quatuor*.[27] In this treatise he attempted to define the disease and especially to distinguish it from double tertian fever. Spigelius drew upon impressively wide clinical, anatomical, epidemiological, and pedagogical experience gained in the Low Countries, in northern Italy, and in central Europe. Several of the outbreaks which he described in his book were quite probably malaria. Another outbreak produced malignant fever and red spots resembling mosquito bites; one may hazard the guess that this was typhus.[28]

Like Celsus and other authors, Spigelius pointed out the difficulty of diagnosing semitertian fever. Even skilled physicians, he says, confound this disease with double tertian fever, but in semitertians the attack lasts eighteen hours, whereas in tertians the duration is twelve.[29] It is established, Spigelius remarks, that the proximate cause of genuine semitertian is a double humor which possesses putridity and consists of excrementitious bile and phlegm.[30] Elsewhere he adds:

> The putridities of intermittent and continuous fevers have always been within the vessels and rarely outside them; on that account I have always found the

---

[24] *Ibid*, col 2, paras A and B

[25] *Ibid*, p 579, col 2, paras B and C

[26] Gerrit A. Lindeboom, "Adriaan van den Spiegel," *Dictionary of Scientific Biography*, ed Charles C Gillispie, 16 vols (New York. Scribner's, 1975), 12 577–78 Biographical notes and documents are to be found in Giuseppe Favaro, "Contributo alla biografia di A. Spigeli (Adriaan van den Spiegel) nel terzo centenario della sua morte (1625–1926)," in *Atti del Reale Istituto Veneto di Scienze, Lettere ed Arti*, 1925–26, *85*(*2*) 213–52

[27] (Frankfurt de Bry, 1624) The treatise is reproduced with minimal editorial change in Spigelius's *Opera quae extant omnia*, ed Johannes Antonides Van den Linden, printed magnificently by Blaeu of Amsterdam in 1645 (2 vols in 1), the *De semitertiana* is in vol 2, pp 1–64 In the discussion of Spigelius's treatise, all page references will be based on the edition of 1624, but chapter references will be included for the convenience of readers who have access only to the more readily available edition of 1645

[28] Spigelius, *De semitertiana*, p 57 (bk. 2, chap 10)

[29] *Ibid*, third paragraph of *Dedicatio* (not paginated).

[30] *Ibid*, p 13 (bk 1, chap 10)

> tinder[31] (*fomitem*) of the semitertian in the vessels, mainly in the smaller ones For in dissected cadavers inflammations produced from bilious and pituitous blood had formed around the hepatic concavity, in the stomach, intestines, omentum, and spleen, and were rapidly fatal[32]

While this statement suggests anatomical experience, the location of the observed changes arouses suspicion of post-mortem coagulation and autolysis plus occasional instances of peritonitis

Spigelius recounts the histories of two victims of semitertian fever whom he had observed. He used abdominal palpation, at least occasionally. In his first case report he states specifically, "I palpated both hypochondria but by touch I could detect no swelling worthy of mention."[33]

The second of the two patients, the manservant of a Swiss nobleman, had had fourteen days of dysentery followed by about two months of fever. After this he was afebrile for five days, and then he died. A tender swelling in the liver had been detected by palpation. Spigelius states that he dissected the cadaver chiefly in order to view the tinder of the fever, which he had always believed to be situated in the veins of the liver and mesentery.[34]

Hippocrates had declared that chills come from the upper abdomen, fever from the lower[35] Galen's discussion of this statement is also on record.[36] In addition, Galen states that quotidian fever does not occur without disease of the mouth of the stomach, quartan without disease of the spleen, or tertian without disease of the liver[37] Avicenna, in a discussion of *causon* (continued burning fever), said that it originates around the heart and in veins near the mouth of the stomach or in parts of the liver and in noble structures near the heart[38] The ancient and medieval beliefs were modified, and probably in part dislodged, by the influence of Jean Fernel,[39] who declared that the site of intermittent fevers is in the region of the precordia and around the stomach, the diaphragm, the hepatic concavity, the spleen, pancreas, or mesentery. Spigelius attempted to resolve this issue by means of dissection; in other words, he followed the path which Fernel had pointed out Like Fernel, he did not discard Galenic humoralism.

In his autopsy of the patient whose history has been given in a preceding paragraph, Spigelius found mild "erysipelatous" inflammation of the stomach He does not mention the appearance of the spleen. The liver was unduly large; Spigelius broke it into big pieces—*in magna frusta*—but almost no blood emerged from it. The portal and caval trunks likewise contained little blood, but in the mesenteric veins and the veins in the omentum and stomach, the blood was abundant, thick, and black. The omentum was "semiputrefied by erysipelatous inflammation or severe phlogosis," which was present also in the blood within all the small branches of the portal vein. The gallbladder contained thick phlegmatic humor mixed with black bile. The common bile duct and all the biliary radicles in the liver were obstructed[40]

---

[31] By *tinder* he means the material which burns

[32] *Ibid*, p 21 (bk. 1, chap 14) Translation by author

[33] *Ibid*, p 22 (bk 1, chap 15)

[34] *Ibid*, pp 23–24 (bk 1, chap 15)

[35] Hippocrates, *Epidemics* 6 5 15 (Littré, 5 320, 323)

[36] Galen, *Commentarium V in Epidem liber VI* (Kuhn, 17B 299–300)

[37] Galen, *Ad glauconem de medendi methodo* (Kuhn, 11 18)

[38] Avicenna, *Liber canonis*, trans from the Arabic by Gerardus Carmonensis, rev by Andreas Alpagus (Basel, 1556, facsimile, Teheran Imperial Organization for Social Services, Pahlavi Commemorative Reprint Series, 1976), bk. 4, fen 1, tract 1, chap 35, p 785 The marginal notes in this edition refer the reader to Aetius and to two Galenic passages (Kuhn, 15 758 and 9 664) which mention the veins and the viscera as sites of origin

[39] Jean Fernel, *Medicina* (Paris Wechelus, 1554), bk. 4, chap 9, p 103 See the detailed discussion by Iain M Lonie, "Fever Pathology in the Sixteenth Century Tradition and Innovation," in *Theories of Fever from Antiquity to the Enlightenment*, ed W F Bynum and Vivian Nutton, *Medical History*, suppl no 1 (London Wellcome Institute for the History of Medicine, 1981), pp 19–44

The anatomical findings in this case confirmed Spigelius's opinion that the material substrate of semitertian fever is situated within small venous branches in the abdomen. The modern pathologist will suspect that Spigelius had been looking at post-mortem clots in these veins. An internist, noting that two weeks of dysentery had been followed by two months of fever, and noting also that the liver was large and tender, is likely to suspect amebic infection. Neither of these modern surmises should becloud the fact that the autopsies failed to shake Spigelius's belief in the existence of semitertian fever or in the validity of Galenic doctrine

Spigelius's reaction to his observations—more accurately, his failure to react—obliges us to notice two problems that stand outside the scope of the present research: the tenacity of dogma and authority, and the dominance of preconception over observation. The Spigelian problem is complicated by the confusion between ante-mortem coagulum and post-mortem clot, a difficulty which was not yet at the end of its obstructive career.

In the introductory paragraphs of the chapter "on composite diseases and the semitertian," which forms part of his *De febribus*,[41] Daniel Sennert (1572–1637) distinguished two principal ways in which fevers may be present simultaneously. In *febres confusae* (combined diseases),[42] two fevers begin at the same time and end at the same time They originate in different humors, which are mingled, the humors are held in the same place and they putrefy simultaneously, but each retains its own character. Hence, all the symptoms and signs are mixed together, and it is scarcely possible to tell them apart. *Febres implicitae* (intertwined fevers)[43] are joined in such a way that the nature of each component can be discerned, and the same applies to the signs and the symptoms.

After this exordium, Sennert turns more particularly to semitertian fever.[44] In this disease, he says, a complete tertian and a complete quotidian are present. According to the common opinion, he writes, semitertian is made up of these two put together, yet the nature of this fever is extremely obscure (*quaenam sit febris huius natura obscurissimum est*),[45] and, like the ancients, the moderns had not come to clear agreement about it Sennert inclined to the judgment that the semitertian is an intertwined fever—*rectius sentiunt ii, qui implicitam esse febrem statuunt*[46]—but he willingly left each person free to form an independent opinion.[47] In addition, he conceded that fevers which are inherently intermittent, especially the tertians (whether simple, double, or triple), and even the quotidians, can be called semitertians.[48] He agreed that the semitertian is common and dangerous,[49] and he quoted Spigelius both extensively and favorably.

---

[40] See n 34 above

[41] Daniel Sennert, *De febribus*, chap 21, in his *Opera omnia*, 5 vols in 3 (Paris, 1641), 2. 657–63

[42] *Ibid*, p 657, col 2, sec A

[43] *Ibid*, sec C

[44] *Ibid*, p 658, col 2, sec C

The revolutionary Jean Baptiste van Helmont (1577–1644), as might be expected, saw things differently In a sarcastic discussion of humoral doctrine he wrote.

> I am justly indignant that the schools have not imagined a fifth humor for quintan fever nor a half humor and a humor and a half for the *epiala* and the semitertians Likewise they neglected double bile for a double tertian, they forgot double black-bile for the double quartan, and they failed to discover an erratic and uncertain humor for erratic fever[50]

In another passage, less skeptical and less hostile,[51] he wrote that disturbances in the discharge of urine and solid matter cause spurious, semitertian, and erratic fevers. This statement implies no support for humoralistic doctrine, but neither does it express any doubt about the reality of semitertian fever.

At this point we may draw the gloomy inference that not the extensive experience of Spigelius, the more systematic and liberal judgment of Sennert, or the recalcitrant attitude of van Helmont had much immediate effect on the problem under discussion.

In his *Observationes medicae et curationes insignes,* Lazarus Riverius (1589–1655) recorded two cases of semitertian fever. One of these patients had been seen in 1631.[52] Riverius's *Praxis medica* contains a chapter titled

---

[45] *Ibid*, p 659, col 1, sec A

[46] *Ibid*, sec B

[47] *Ibid.*, col 2, sec A

[48] *Ibid*, sec D

[49] *Ibid*, p 661, col 2, sec. D

[50] Jean Baptiste van Helmont, *De febribus,* chap 3, in his *Opuscula medica inaudita* (Cologne Kalcoven, 1644), p 23 An analogous remark to van Helmont's on the fifth humor was later made by Edmund Meara in chap 6 of his attack on Willis, *Examen diatribae Thomas Willisii* (1665, Amsterdam Schagen, 1666), *vide infra,* n 65 Willis had suggested that five fundamental principles exist salt, sulphur, spirit, earth, and water

The *epiala* is defined by Galen in *De inaequali temperie,* chap 8 (Kuhn, 7 751) Stephanus Blancardus (*Lexicon medicum* [1683, facsimile, Hildesheim Georg Olms, 1973], p 191) says it is a continued fever in which heat and cold are observed at the same time, and that it arises especially from inflammation of the internal structures

[51] Van Helmont, *De febribus,* 11 94

[52] Lazarus Riverius, *Observationes medicae et curationes insignes* (The Hague Vlacq, 1656), centuria 1, observ 54, p 59, centuria 3, observ 46, pp 214–15 The English translation of Riverius's *Praxis medica* by

De febribus compositis, seu complicatis, et speciatim de haemitritaeo (On Compound or Complicated Fevers, Especially the Semitertian).[53] It states that Galen had propounded many kinds of composite fever, but that the compounding of two continued fevers had been contested by (later) authors and was "scarcely observed in practice." Intermittents may be compounded with other intermittents to form double or triple tertians, Riverius stated.

Further, he wrote that a tertian intermittent may be complicated by a continued quotidian, or an intermittent quotidian by a continued tertian. Both are called semitertians. Accordingly, semitertians may be of two kinds These considerations determine the prognosis and the treatment.

Riverius expressed no dissatisfaction with the concept of semitertian fever. He stated that he had seen the disease. In his comments, he cites Galen often and refers collectively to "authors"—presumably post-Galenic authors. His chapter on semitertian fever makes no mention of Spigelius.

Franciscus Sylvius (1614–72), the famous physician, teacher, and iatrochemist, included in his treatise on medical practice[54] an explanation of complicated varieties of fever such as continuous quotidians, tertians, and quartans, and also double and triple tertians. He does not use the terms *semitertian* or *hemitritean.* Toward the end of the discussion he subjoins that in addition to these classified intermittent fevers (*febres intermittentes ordinatas*), others are observed quite often which return and cause suffering at irregular times Someone might designate them not inappropriately as wandering and unclassified.

Paul Barbette (1619?–65), a well-known practitioner and writer[55] contemporary with Sylvius, included in his textbook of medical practice a chapter on fevers[56] which points out that double tertians are often fatal, whereas simple tertians are easily treated by experienced persons. He does not mention semitertians

After the second edition of Spigelius's *De semitertiana,* which appeared posthumously in 1645, mention of semitertian fever became somewhat uncommon. I have been unable to find the word *semitertian,* or its Latin or Greek equivalent, in Thomas Willis's informal casebook of 1650–52[57] or in his *De febribus* as it appeared in two editions of the *Diatribae duae* (1659

Nicholas Culpeper, Abdiah Cole, and William Rowland, 2 vols (London Sawbridge, 1678) describes the first of these two cases as "a semitertian ague" (2 34–35)

[53] Lazarus Riverius, *Praxis medica,* bk. 16, sec 2, chap 6, in his *Opera medica universa* (Lyons Huguetan, 1690), pp 444–45 (Earlier editions are extant) The title of this chapter differs little from the title of the section in Mercatus, discussed above

[54] Franciscus Sylvius, *Idea praxeos medicae* (Frankfurt Typis Humianis, 1671), bk. 1, chap 27, secs 12–14, p 291

[55] Daniel de Moulin, "Paul Barbette, MD a seventeenth-century Amsterdam author of best-selling textbooks," *Bull Hist Med,* 1985, *59* 506–14

[56] Paul Barbette, *Praxis medica,* in his *Opera omnia* (Geneva de Tournes, 1704), pp 1–288 See chap 3, "De febribus," pp 107–20

[57] Kenneth Dewhurst, ed, *Willis's Oxford Casebook, 1650–52* (Oxford Sandford Publications, 1981)

and 1662)[58] or in his *Oxford Lectures* of 1661–64[59] or in his *Opera omnia* of 1681[60] or in the English translation of the *Opera omnia* by Samuel Pordage,[61] which also was published in 1681

While Willis, so far as I have been able to ascertain, did not use the word *semitertian,* the clinical phenomena which twenty centuries of his predecessors had assembled under that designation did not elude him This fact is evident in the final paragraph of his chapter on intermittent fevers

> There is yet a great doubt concerning the intervals of the periods, which somtimes [*sic*] seem to be double in the same Feaver, that the first Accession answers to the third, and either perhaps comes in the morning; and again the second to the fourth, and both happen in the Evening, and so forward. wherefore, the Feaver bearing this figure, is wont to be named a double Tertian, or Quartan . [62]

Willis felt that in some cases exhibiting this reduplicative character the fever is really simple, but that errors had arisen because the intervals were computed by days, whereas they should have been reckoned by hours.[63] Other causes were "that the different manner of eating, which the sick use, very often produced great inequalities of figures"—that is, great variations in the clinical cycles. Irregularity might occur also "from diet evilly instituted, chiefly from surfeit, and drinking of Wine; or else from Medicines wrongfully administred "[64] Willis described (or imagined) the fundamental mechanism of these deviations in terms of disturbed fermentation, an explanation which accords with the doctrine expounded throughout his *De febribus.*

It can be said, therefore, that although Willis did not mention semitertian fever by name[65] and by no means settled the very old problem of the difference between semitertian and double tertian fever, his discussions of exceptional intermittents deal with sicknesses that did not differ very widely from the confusing and ill-defined traditional semitertian. It is of incidental interest that these passages in the *De febribus* open with the words *Maxima adhuc dubitatio est,* which the translator Samuel Pordage renders "There is yet a great doubt." Moreover, these passages are recorded in the table of contents under the designation *febrium intermittentium anomaliae* (Anomalies of Intermittent Fevers).

---

[58] Thomas Willis, *Diatribae duae medico-philosophicae quarum prior agit de fermentatione altera de febribus* (London· Roycroft, 1659, The Hague Vlacq, 1662)

[59] Kenneth Dewhurst, ed and trans , *Thomas Willis's Oxford Lectures* (Oxford Sandford Publications, 1980)

[60] Thomas Willis, *Opera omnia,* 2 vols (Lyons Huguetan, 1681), 1 63–213 (plus preface)

[61] Thomas Willis, *The Remaining Medical Works,* English trans by S[amuel] P[ordage] (London. Dring et al , 1681), pp 53–178

[62] The quotation is taken from the Pordage translation (London, 1681), pp 75–76 In the *Opera omnia* (Lyons, 1681), the passage is in vol 1, pp 86–87

[63] This problem and Willis's exposition were discussed by Richard Lower in 1655, without mention of the term *semitertian* See Kenneth Dewhurst, *Richard Lower's Vindicatio A Defence of the Experimental Method* (Oxford Sandford Publications, 1983), pp 150–53, 270

[64] Willis, *Remaining Medical Works,* p 76

[65] Semitertian fever also escaped mention in Edmund Meara's attack on Willis, the *Examen diatribae Thomae Willisii*

It is natural to introduce the name of Thomas Sydenham (1624–89) immediately after that of his contemporary Thomas Willis (1621–75). As in the case of Willis's work, a search for the designation *semitertian fever* in Sydenham's work—based in this instance chiefly on the indexes of the Sydenham Society edition[66] and on extensive but subtotal sampling of the text—revealed no mention of the disease.[67] Nor could the word *semitertian* be found in the documents which Dewhurst reproduced in his book on Sydenham.[68]

In 1681, Raymond Restaurand (1627–82), a graduate of Montpellier, issued a treatise[69] which mentions successful use of Peruvian bark for fevers clearly designated as hemitritean. His essay is more important in the history of the drug than in the history of the disease. Hence it requires no further discussion in the present context.

Richard Morton (1637–98) issued his extensive treatise on fevers, the *Pyretologia,*[70] in 1692, seventeen years after the death of Willis and three years after the death of Sydenham. This work contains a table (33.5 × 44.5 cm) titled "Synopsis Febrium"[71] which presents the category *Intermittens* and lists under it the quotidian, tertian, and quartan fevers, both simple and double, but omits the semitertian.[72] The text of the book, however, repairs the deficiency:

> Whatever may be the opinion of the ancients to the contrary, the ferment of fevers of this kind [intermittent fevers] seems to me to be not multiple but one and the same, because these fevers, especially when they have lasted a long while, are apt to change their type without any cause being evident, and a fever which is styled a genuine tertian, after a week or two turns into a quotidian, semitertian, and not rarely even a quartan, and vice versa.[73]

In a discussion of diagnostic signs he notes:

> It seems to me superfluous to recount the genuine or diagnostic and pathognomonic signs of intermittent fever in general, or of quotidian, tertian, quartan, or semitertian specifically, since these become known to everyone by careful

---

[66] Thomas Sydenham, *The Works of Thomas Sydenham, M.D., Translated from the Latin edition of Dr. [William Alexander] Greenhill by Robert Latham,* 2 vols. (London: Sydenham Society, 1848–50).

[67] A curious exception was found. In a footnote which he inserted in his *The Entire Works of Dr. Thomas Sydenham* (London: Cave, 1742), John Swan wrote: "A dropsy is produced by frequent purgation, especially in a semi-tertian and a quartan" (p. 62). This note reappears in the 1749 edition of Swan's version.

[68] Kenneth Dewhurst, *Dr. Thomas Sydenham (1624–1689): His Life and Original Writings* (Berkeley and Los Angeles: University of California Press, 1966).

[69] Raymond Restaurand, *Hippocrate de l'usage du china-china pour la guérison des fièvres* (Lyons: Vitalis, 1681), chap. 2. I have used the edition issued by Francesco Maria Nigrisoli in *Febris china chinae expugnata* (Ferrara: Pomatelli, 1687). An acrid note in Antoine-Laurent Bayle and Auguste Thillaye, *Biographie médicale* (1855; facsimile, Amsterdam: Israel, 1967), says of Restaurand "ce médecin, grand partisan d'Hippocrate, voyait cet auteur partout, même dans les choses qui ont été inconnues aux Grecs" (2: 78–79).

[70] Richard Morton, *Pyretologia: seu exercitationes de morbis universalibus acutis* (London: Smith, 1692).

[71] *Ibid.*, pp. 66–67.

[72] As later parts of the present analysis will show repeatedly, omission of the semitertian from contexts in which its presence could be expected is often of historical significance.

[73] Morton, *Pyretologia,* exercitatio 1, chap. 3, p. 78. Translation by author.

> observation of the seizures, unless the intermittent has taken on the type of some other sickness.[74]

From these and other passages[75] it is clear that Morton did not deny the existence of semitertian fever but also did not accord it the dignity of a separate entity. Instead, it was a trait that the well-recognized intermittents might assume from time to time, just as these might also change into one another.

In 1683, Laurentius Bellini (1643–1704) published the first edition of his *De febribus*,[76] in which he rejected Willis's fermentationist doctrine and offered instead a iatromechanical explanation that relied on viscosity, velocity, and density. He accepted the traditional opinions that the semitertian is a fever compounded of a continued quotidian and an intermittent tertian and is extremely lethal. At the same time, he believed that semitertian fever and erratic fevers do not make up any genus of fevers which is not included in the ordinary and standard categories or which comes from causes different from the viscosities that he had discussed; thus these fevers must be included in these categories and explained by similar definitions.

Whereas, as we have seen, Willis and Sydenham discussed fevers extensively but made no mention of the semitertian, Bellini mentioned the disease while denying it the status of a separate category. His clear negation suggests that the semitertian was fading from acceptance. Further evidence appeared at about the same time in the attractive medical dictionary of Stephanus Blancardus (1650–1702).

> Hemitritean is a disease that is called semitertian, although rudely (*barbare*) Authors fight among themselves as to whether it constitutes a special kind of fever The older writers take the affirmative, especially Spigelius, who wrote a whole book about it, but all of the more recent authors correctly take the negative (*recte negant*), classing it among the continued fevers and very often the malignant ones [77]

This opinion was formulated by a man who had practiced medicine and in addition had great knowledge of anatomy, history, and literature. It implies a turning point in the development.

EIGHTEENTH CENTURY

The skepticism of Bellini and the denial by Blancardus are not in conflict with the writings of Boerhaave (1668–1738). Neither in his *Aphorismi* (1709) nor in his *Opera omnia medica* (Venice. Basilius, 1757) does Boerhaave, in a reasonably conscientious review, make mention of semitertian fever. Since Boerhaave was both a learned and an experienced clinician, and since the *Aphorismi* was didactic in purpose, it is a fair inference that Boerhaave either did not believe in the existence of semitertian fever or did not consider the subject worthy of the student's attention.

---

[74] *Ibid*, chap 4, p 80

[75] *Ibid*, pp 87, 105, 108, 111

[76] Laurentius Bellini, *De urinis et pulsibus, de missione sanguinis, de febribus, de morbis capitis, et pectoris* (Bologna Pissarii, 1683)

[77] Blancardus, *Lexicon medicum*, pp 239–40 Translation by author See also Saul Jarcho, "Blankaart's dictionary. an index to seventeenth-century medicine," *Bull NY Acad Med*, 1982, *58* 568–77

The negative or at least skeptical trend observable in the writings of Bellini and Blancardus and implied in the works of Boerhaave finds no dissent in one of the great classics of malariology, the *Therapeutice specialis* of Franciscus Torti (1658–1741)[78]

In this monumental treatise a special chapter is devoted to the effectiveness of the Peruvian bark "against the commoner complicated fevers, such as the semitertians, etc."[79] Torti opens the discussion with a significant pronouncement: "I would not readily admit that in fevers all the complications which the ancients have reported are possible; but that very many exist, I cannot readily deny." According to the old authors, says Torti, the fevers that are called putrid can be complicated by the non-putrid, as when a periodic fever is joined to a hectic in consumptive persons; this is seen occasionally Likewise, putrid fevers may combine with other putrid fevers. This may happen in many ways; for example, by the complication of continued fevers with other continued fevers. Such an occurrence, which Fernel had called not a genuine intertwining but a combination of fevers (*confusionem febrium*), Torti, intending a pun, characterizes as a confusion of understanding (*confusio intellectuum*). Combination may also occur by the intertwining of intermittents with the same or other intermittents. Finally, it may occur by the intertwining of intermittents with continued fevers. Here also a sort of hallucination occurs (among medical practitioners), since disorderly reduplications of fevers, especially of intermittents, and likewise of proportionate fevers, often impose themselves on physicians by assuming the guise of the semitertian or some similar monster, not to say a chimera (*specie . . Semitertianae, aliusve Monstri, ne dicam cum nonnullis, Chymaerae*).

In contrast, Torti continues, the vicissitude which is encountered not rarely in regular types of fever, namely, that they may go on endlessly in an established pattern, with the paroxysm appearing sometimes twice in one day and once on alternate days (that is, three times in two days) and that not long after one attack a new attack follows—such things happen repeatedly in medical practice—would seem to remove suspicion of persistent misunderstanding. And so, whereas the old writers have reported so many combinations to be possible, whatever the truth of the matter may be (*quidquid sit de veritate rei*), it is easy to formulate an opinion about each combination.

Torti says that therapeutic difficulties arise in connection with semitertians when a quotidian intermittent is coupled with a continuous tertian or when a continuous quotidian is coupled with an intermittent tertian. This subject, moreover, is not explained in the same way by all authors; some put together the semitertians from continued symptomatic and inflammatory fevers, just as they do with intermittents, whereas others put them together only out of varied and irregular mixtures of intermittents. Torti says:

---

[78] Franciscus Torti, *Therapeutice specialis ad febres quasdam perniciosas* (Modena. Soliani, 1712)

[79] *Ibid*, bk. 5, chap 5, pp 641–45 ("Proficuus asseritur Peruvianus Cortex, primo ad Febres Complicatas vulgatiores, puta, Hemitritaeos ")

> I likewise hesitate not a little, and I plausibly believe that this famous fever is of the genus of intermittent tertians, but is multiple—for example, double or triple; the attacks in this kind of fever repeat so often as to make it terrible or horrible throughout the entire course and indeed endow it with such intensity that from the beginning of the course they imitate a similar disease in the genus of the continued fevers[80]

Like most of the authors already cited, Torti combined knowledge of the literature with knowledge of clinical fact. Well aware that the symptoms of fevers, especially the paroxysmal attacks of intermittents, may occur in numerous permutations and combinations, he questioned the identity rather than the reality of the "famous semitertian." His doubts are expressed frankly, but he inclined to the opinion that this disease is a complex intermittent tertian. He contributed—or, more probably, confirmed—the observation that many cases of semitertian, like many cases of other complex fevers, yielded to Peruvian bark, and he pointed out the importance of using larger doses than had been customary with many of his predecessors and contemporaries.

In his compendium of medicine,[81] Johannes de Gorter (1689–1762) remarked that in intermittent fevers, especially the subtertian and the autumnal quartan, frequent purgation leads to dropsy, a sequence not unknown to Hippocrates. Elsewhere in the same treatise, de Gorter commented on the nomenclature of fevers, such as *causus, causodes, epiala,* and *lipyria.* He added: "More designations could be thought up if, in the urgency of symptoms, one wanted to attach an unnecessary name (*nomen sine necessitate*)."[82]

Werlhof's treatise on fevers does not discuss the semitertian but merely refers in a footnote to the book by Restaurand[83] written more than half a century earlier.

In 1751, Richard Mead (1673–1754) published his last book, *Monita et praecepta medica*[84] In this summary of his long experience he discussed semitertian fever under the intermittents.[85] He wrote that Galen had characterized the disease correctly as a mixture of continuous quotidian and intermittent tertian. Apparently it was derived from a combined obstruction due to bilious humors and excessively tenacious lymph and phlegm. In Mead's view, there should be no rush to prescribe Peruvian bark, since this may produce increased obstruction in the visceral passageways and a hectic fever would ensue. It is safer to administer absinthe salt in lemon juice mixed with plain cinnamon water.

---

[80] *Ibid*, p 643 Translation by author

[81] Johannes de Gorter, *Medicinae compendium Pars prima* (Leyden Vander Aa, 1731), tractatus 35, sec 11, p 152

[82] *Ibid*, p 183

[83] Paul Werlhof, *Observationes de febribus praecipue intermittentibus et ex earum genere continuis* (Hanover Foersterianorum, 1745) See Restaurand, *Hippocrate,* chap 2

[84] Richard Mead, *Monita et praecepta medica* (London Brindley, 1751)

Mead's remarks show that Galenic notions of the fevers, including the semitertian, were still regarded as authoritative by some outstanding physicians, and that Peruvian bark, which had been used in Europe for more than a century, had yet to gain unreserved acceptance.

Like his contemporary, Mead, John Huxham (1692–1768) did not question the existence of semitertian fever In a chapter on intermittents he stated that "sometimes quotidian, semitertian and tertian Fevers, are very rife and cotemporary with epidemic Pleurisies and Peripneumonies," because in some constitutions the cold season braces up the fibers and condenses the blood to a state of high viscosity. He said also that if a fever "from a regular Tertian, runs into a Semi-tertian, or Quotidian, or greatly anticipates the Time of the regular Paroxysm, a remittent, or continual Fever is forthwith the Consequence" Toward the end of his chapter on intermittents Huxham added the comment that a regular tertian is a "Medium" between an inflammatory and a slow, nervous fever.[86] The index to his book does not list semitertian fever or its Achates, the hemitritean.

Morgagni's extensive *De sedibus* devotes an entire letter (no 49) to fever. It fails to mention the semitertian, except for a trivial reference to an incredible statement in the *Sepulchretum* of Bonetus.[87] The famous indexes of the *De sedibus* also prove unhelpful.

It is widely recognized that a prominent trait of eighteenth-century medicine was an interest in systems, which emanated from an effort to achieve understanding by the orderly arrangement of phenomena One manifestation of this tendency was the creation of classified lists of diseases, such as the nosologies of Carolus Linnaeus (1707–78), François Boissier de Sauvages (1706–67), Philippe Pinel (1745–1826), and William Cullen (1710–90).[88] Since a major taxonomic work by Sauvages, his *Nosologia methodica sistens morborum classes*,[89] together with the *Genera morborum* of Linnaeus,[90] was excerpted abundantly by Cullen in his *Synopsis nosologiae methodicae*,[91] only the last-named need be considered here.

---

[85] *Ibid*, chap 1, sec 8, pp 36–42, esp pp 40–42

[86] John Huxham, *An Essay on Fevers*, 2d ed (London Austen, 1750), chap 2, pp 18–27, esp pp 20, 22

[87] Giovanni Battista Morgagni, *De sedibus* 49 1 Bonetus had reported a case of pestilential hemitritean in which bugs or flies were found in the cerebral meninges (*Sepulchretum*, observ 57, sec 11)

[88] See Lester S King, *The Medical World of the Eighteenth Century* (Chicago University of Chicago Press, 1958), pp 193–226

[89] Earlier editions were published in Amsterdam (1763) and Venice (1764)

[90] (Uppsala Steinert, 1763)

[91] William Cullen, *Synopsis nosologiae methodicae*, 2d ed (Edinburgh Kincaid et al, 1772) See also the

Under the class Pyrexiae, the order Febres, and the section Intermittentes, Cullen not inappropriately designated Genus I as Tertiana, to which he accorded several subcategories.[92] The fifth of these, subcategory E, contains a tertian fever in which days of two paroxysms alternate with days of a single paroxysm Sauvages had called this disease a triple tertian; Galen had called it a semitertian of the first order; Friedrich Hoffmann had called it a semitertian.

Cullen's sixth subcategory denotes a tertian in which there is a greater remission between the odd day and the even day, but a lesser remission between the even day and the odd. This was Galen's semitertian of the second order, known to Celsus as a hemitritean and to Sauvages as amphimerina. A note intercalated at this point by Cullen states that perhaps every hemitritean should be put among the *remittent* fevers

These details show that Cullen recognized the existence of the semitertian, that he accepted Galen's two subcategories of this disease, and that the synonymy and classification continued to present difficulties.

So much for Cullen's valiant taxonomy His clinical writings reveal something different. In Cullen's famous *First Lines of the Practice of Physic, for the Use of the Students in the University of Edinburgh,*[93] the fevers are discussed extensively but the semitertian is absent. We must infer that faithful nosology required inclusion of this entity but that it was not important enough or distinct enough to be mentioned to students or practitioners.

The great clinician William Heberden (1710–1801) may serve to conclude the discussion of the eighteenth century. His volume of commentaries includes a chapter on intermittent fevers. After discussing quotidians, tertians, and quartans, he says: "Much longer intervals have been known; but these happen so seldom, that they have been distinguished by no name, and are not of any importance to deserve our notice."[94] He applied similar tactics of exclusion to the semitertian, which is unmentioned in his book.

We may justly characterize as a retrogression the remarkable work, widely inclusive and minutely detailed, by Ernestus Daniel Augustus Bartels (1778–1838) on "nervous fever."[95] This book, intended chiefly as a study of what is now called typhoid fever, leans heavily on the taxonomic interpretations of Pinel and on definitions introduced by Galen. For example, Bartels mentions hemitritean fever repeatedly,[96] commends Pinel's judgment that

---

charming condensed translation of this edition, *Synopsis and Nosology, Being an Arrangement and Definition of Diseases* (Hartford Printed by Nathaniel Patten, 1792)

[92] Cullen, *Synopsis* (1772), pp 227–30

[93] I have consulted the edition published in Edinburgh in 1786 by Elliott and Cadell and that published in Edinburgh in 1791 by Bell et al Some editions lack the subtitle

[94] William Heberden, *Commentaries on the History and Cure of Diseases* (London Payne, 1802), chap 38, pp 158–62 The quote is on p 158

[95] Ernestus Bartels, *Die gesammten nervosen Fieber, in sich begreifend die eigentlichen Nervenfieber nebst den Fieberseuchen und Wechselfiebern,* 2 vols (Berlin Rucker and Puchler, 1837–38) The biographical note on Bartels by A. Eulenburg (August Hirsch, *Biographisches Lexikon,* 3d ed. [Munich Urban and Schwarzenberg, 1962], 1 378) shows that Galen and Bartels had in common the tendency to excessively minute classification

[96] Bartels, *Die gesammten nervosen Fieber,* 1 48–49, 132, 145, 217, 378

the disease is a remittent phlegmatic fever which could become intermittent, and ultimately takes the view that the hemitritean is a genuine combination of an intermittent fever and a continued fever.

The great nineteenth-century clinician and teacher Armand Trousseau does not discuss semitertian fever in his *Clinique Médicale de l'Hôtel Dieu de Paris,* either in the marvelous chapter on *dothiénentérie* (typhoid fever)[97] or in those on typhus[98] and intermittent fever,[99] although he makes repeated reference to anomalous fevers and he quotes Galen from time to time. Nor is semitertian fever mentioned in Sir Thomas Watson's two-volume Victorian edifice, his *Lectures on the Principles and Practice of Physic.*[100]

The prize for coming last should probably be awarded to the textbook of medicine written by the scholarly physician Charles Hilton Fagge and edited by P. H. Pye-Smith.[101] The perceptive comments of these two men deserve to be quoted:

> The mistake of confounding enteric [typhoid] fever with malarial fevers was commonly committed in the marshy districts of England up to a very recent period; and in India they are even now separated with difficulty These facts would in themselves suggest that in former times .. the distinction would fail to be recognised; and an instance in point is probably to be found in the writings of Baglivi ... and Lancisi, .. who recorded cases of fever at Rome in which the intestines were ulcerated, but which they identified with the "hemitritaeus," i.e., semitertian, a form of ague mentioned by Galen.[102]

Elsewhere the author and editor remark·

> A patient may have two ague-fits one day, and a single fit on the following day, this series being regularly repeated, and one may then suppose that a quotidian and a tertian are combined Such a case constitutes the *hemitritaios* of Celsus, or, as subsequent Latin writers have termed it, a *semitertian* [103]

The word *semitertian* and its approximate synonym *hemitritean* are recorded in nonmedical eighteenth-century dictionaries.[104]

---

[97] Armand Trousseau, *Clinique Médicale de l'Hôtel Dieu de Paris,* 3 vols (Paris Baillière, 1865), 1 212–95 Note incidentally the discussion of earlier clinical masters and their opinions on the alleged change of intermittent fevers to putrid continued fevers (1 247–51)

[98] *Ibid*, 1 296–306

[99] *Ibid*, 3 414–52

[100] Sir Thomas Watson, *Lectures on the Principles and Practice of Physic,* 5th ed, 2 vols. (London Longmans, Green, 1871)

[101] Charles Hilton Fagge, *The Principles and Practice of Medicine,* ed, Philip H Pye-Smith, 2d ed, 2 vols (London Churchill, 1888)

[102] *Ibid*, 1 105, referring to Georgius Baglivi, *De febribus malignis, et messentericis* [*sic*], in his *De praxi medica* (Venice Tomasinus, 1727), bk. 1, chap 9, pp 32–37, and Johannes Maria Lancisi, *De noxiis paludum effluviis* (Rome Salvioni, 1717), bk. 2, epid. 1, chap 5, sec 4, p 206, and chap 6, sec. 2, pp 207–8 (Contrary to Fagge's assertion, Baglivi mentions the hemitriteus but Lancisi does not.)

[103] Fagge, *Principles and Practice,* 1 341

[104] Nathan Bailey, *An Universal Etymological English Dictionary* (1721, facsimile, Hildesheim Georg Olms, 1969), not paginated, Samuel Johnson, *A Dictionary of the English Language* (1755, facsimile, New York Arno Press, 1979), not paginated *Webster's New International Dictionary,* 2d ed, 1946 The entries in the *Oxford English Dictionary* and in the dictionary of Blancardus are noted above

CONCLUDING OBSERVATIONS

The history of semitertian fever is the history of a concept which flourished, declined, and disappeared. The disease on which the concept was based was regarded in antiquity as common and dangerous. In our time it is unknown.

Described by Hippocrates and Celsus, and by many other authors before and during the second century A.D., it was defined, discussed, and rediscussed by Galen, but not with complete clarity or consistence. Using Galenic texts as their principal literary source, later authors chiefly elected the concept that the disease was usually an intermittent—although it was sometimes a remittent or even a continued—fever, and that days of two paroxysms alternated with days of a single paroxysm. Hence, the disease could also be classed as an anomalous or erratic fever. Even in antiquity the definition, description, and classification of the disease were portrayed differently by different authors. These discrepancies were an important cause of divergence in later centuries. The heritage was complex and vague

Whatever the minutiae of the clinical course, the diagnosis depended on the presence of fever, regularly or irregularly cyclical, in which some of the paroxysms or exacerbations included chills. The only physical signs that played a part in the concept of semitertian fever or in the recognition of the disease in individual cases were the physical signs of fever, such as cutaneous heat and dryness of the mouth, and signs that the causative humors, that is, yellow bile and phlegm, were present.

Before the advent of clinical thermometry,[105] the presence of fever was not always easy to recognize; the accurate recognition of remissions and intermissions must have been even more difficult. Galen wrote that fever is the conversion of natural heat into burning heat,[106] and he defined fever as immoderate heat affecting the entire body.[107] Accordingly, it was necessary to distinguish general overheating from local,[108] the differentiation being based in part on the characteristics of the pulse.[109] Hence, the physician had to take into account other conditions which are known to affect the pulse, such as grief, anger, exercise, and love.[110] In addition, the physician might encounter a lipyric fever,[111] in which the surface of the body and the extremities are cold;[112] presumably the heat had gone inward.

To the intricacies of ancient medicine the historian may justifiably add the intricacies of Galen, who bequeathed to the Western and Middle Eastern world a pulse lore of conspicuous complexity and a treatise on dyspnea which is almost equally complicated.[113] The fourteen centuries which followed Galen can be summarized by reference to Mercatus, who criticized Galen's inconsistencies but set forth the Galenic concept of semitertian fever in full elaboration. The *floruit* of the disease is represented by Spigelius, a professed Galenist, who apparently included in his scope or "data base" cases of malaria, typhus, and probably typhoid. Spigelius looked for peccant humors at autopsy, and he found them. The decline of the concept of semitertian fever can be said to have begun before its acme, in the disturbing speculations of Fernel as to the site of febrile diseases, but the concept was to protract its waning survival for almost three centuries longer.

---

[105] Carl Wunderlich, *Das Verhalten der Eigenwarme in Krankheiten* (Leipzig Wigand, 1868) Thomas Clifford Allbutt, "Medical thermometry," *Brit Foreign Med Chirurg Rev*, 1870, *45* 429–41

[106] Galen, *Introductio seu medicus*, chap 13 (Kuhn, 14 729) A pseudo-Galenic treatise

[107] Galen, *De causis pulsuum*, bk. 1, chap 7 (Kuhn, 9 165)

[108] Galen, *De morborum differentiis*, chap 5 (Kuhn, 6 849)

[109] Galen, *Introductio seu medicus*, chap 13 (Kuhn, 14 729) Pseudo-Galenic

[110] Galen, *De crisibus*, bk. 2, chap 13 (Kuhn, 9 697), Galen, *De pulsibus liber ad tyrones*, chap 11 (Kuhn, 8 473)

[111] Galen, *Definitiones medicae*, item 190 (Kuhn, 19 399) Pseudo-Galenic

[112] Fever complicated by shock (?) Lipyric fever is discussed by Avicenna in *Canon of Medicine*, bk. 4, fen 1, tract 2, chap 50

Sennert wrote a chapter on composite diseases and the semitertian, their placement together under a single rubric implies the reduced importance of both. Helmont's sarcastic comment suggests disbelief, not in the existence of the disease, but in its alleged bipartite humoral cause. The commonsensical Riverius also trumpeted forth an uncertain sound, he accepted the existence of semitertian fever but he remarked that many kinds of composite fever reported by Galen were "scarcely observed in practice."

Approximately contemporaneous with Sennert, van Helmont, and Riverius, who mentioned the semitertian but accorded it no great degree of importance, were Sylvius, Willis, Sydenham, and Lower, influential authors who failed to mention the disease. Morton, also a famous clinician and author, mentioned the disease in his text but omitted it from his nosological tabulation. To these authors we may add Bellini, who mentioned the disease but considered it undeserving of a special category, and Blancardus, who wrote that the semitertian was not a special kind of fever, it was merely a continued fever that often was malignant.

In the eighteenth century the fortunes of the semitertian wavered and weakened. Boerhaave failed to mention the disease in his didactic aphorisms. Torti was skeptical, sarcastic, and in doubt. Questioning the identity rather than the reality of semitertian fever, he believed that the semitertian was probably an intermittent tertian which imitated a continued fever. De Gorter wrote sharply about the use of unnecessary names, and Werlhof limited his mention of the disease to a small part of a large footnote. Mead discussed the disease as an intermittent and reverted to Galenic notions of its cause—the *dernier cri* of the ancient etiology—while Huxham discussed the disease briefly, although it is not indexed in his book. Heberden did not mention the disease, nor did the great nineteenth-century clinicians

---

[113] The skeptic is urged to read Galen's treatises on the pulse and the pseudo-Galenic books which accompany them in the Kuhn edition, as well as the three books of *De difficultate respirationis* (Kuhn, 7 754–960) and their direct descendant, the *Methodus in dyspnoeam* of Fabrizio Bartoletti (Bologna Dozza, 1633)

Armand Trousseau and Sir Thomas Watson, who wrote voluminous textbooks of clinical medicine.

What reasons or circumstances can be adduced for the decline and fall of semitertian fever?

That the concept was imprecise even at the start of its career has been established in the foregoing pages. Additional insight is gained by considering the general condition of the ancient nomenclature and taxonomy of fevers.[114] Under the headings *febris* and *febres,* volume 20 of Kühn's *Galen* (pp 254–63) presents nineteen columns which deal with individual kinds of fever In this roster there are approximately seventy-seven different entries, from *febris acmastica* to *febres vehementes.* Most of these terms have vanished from pyretological usage. Many are synonyms; many others are merely adjectival designations, such as *febris auriginosa,* a fever which sometimes accompanies jaundice. Members of the adjectival group indicate that the distinction between descriptive terms and genuine taxonomic terms, that is, between characteristics and characters, was poorly developed.

We would not be justified in asserting that a true taxonomy of fevers was impossible to establish in Galen's time merely for the reason that the causes of these conditions were unknown. To Galen the causes of some or all of them *were* known, if the issue is to be decided according to his criteria. To use the criteria of later times would, of course, be anachronistic. We must, therefore, take refuge in the unsatisfying determination or platitude that Galen's categories merely represented the state of knowledge and opinion in his own day

The downward career of semitertian fever is suggested indistinctly in the writings of Sennert, van Helmont, and Riverius, and is more obvious in the writings of Willis, Sydenham, and even Barbette. Morton's account of the fever was an exception. All these were men of the seventeenth century. After them the trend continued

Although the Peruvian bark was introduced into European practice about 1640, there is no clear evidence that this drug can be held responsible for the disappearance of the semitertian, especially since the bark experienced its own vicissitudes before it gained full acceptance It is of course to be remembered that the bark contributed to the decline of humoralism *A fortiori* clinical thermometry need not be considered as a cause, since its practical career started in the middle of the nineteenth century.

We are therefore left with the conclusion that the concept of semitertian fever died when Galenic physiology and pyretology, of which it formed a part, succumbed to the advance of medicine Those who insist on a precise judgment in modern terms would probably follow the reasoning of Fagge and Pye-Smith and guess that some cases of semitertian were malaria, others were typhoid, others were typhus, and still others were instances of two fevers occurring simultaneously. No one should pretend that this explanation covers every case.

---

[114] Some aspects of this problem have been considered in my discussion, "Some Ancient and Medieval Statements about Fever" in *Times, Places, and Persons Aspects of the History of Epidemiology,* ed Abraham M Lilienfeld, *Bulletin of the History of Medicine,* n s suppl 4 (Baltimore The Johns Hopkins University Press, 1980), pp 132–38

It must also be observed that even today very few simple clinical signs are available for the differentiation of the fevers. In earlier times emphasis was placed chiefly on peculiarities of the febrile course. Splenomegaly, present in what we now distinguish as malaria and typhoid fever, could not have given conclusive assistance in differentiation. Additional diagnostic help could have been obtained by consideration of cutaneous eruptions. The existence of petechial fever (typhus) was reported in the Renaissance, but in none of the numerous early writings cited in this essay have I found mention of anything similar to the rose spots of typhoid.

It should be remembered also that even now the best clinicians cannot constantly and reliably establish the correct diagnosis in every case of fever unless they command the assistance of the laboratory The differential diagnosis of the fevers stretches clinical ability to the utmost. This is one reason why internists and pediatricians resist the alleged economies which profit-conscious administrators are seeking to impose.

Probably most historians prefer to offer, and most readers prefer to be given, a narrative replete with events which march in logical sequence, which provide the thrill of a climax, and which lead to a sharply characterized denouement. On this reckoning the career of semitertian fever is undeniably a failure It offers no Archimedean eureka, no cynosural hero, no journalistic breakthrough, and its slow demise scarcely warrants the designation of anticlimax. From other fevers which clutter the Galenic indexes and which do not exist elsewhere, it differs mainly in its quondam frequency and its gradual disappearance.

We now come to a most ingenious paradox If it is true that semitertian fever was an imaginary or imaginative construct, it is also true that the most famous victim of the disease is immortal. In act 2, scene 1 of Shakespeare's *King Henry the Fifth,* the hostess, Dame Quickly, beseeches her bawdy associates to visit Sir John Falstaff "He is so shaked of a burning quotidian tertian, that it is most lamentable to behold." In scene 3 of act 2 the hostess announces the great man's demise. The man and his death are remembered much better than the disease.[115]

---

[115] Saul Jarcho, "Falstaff, Kittredge, and Galen," *Persp Biol Med,* 1987, *30* 197–200

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE
REPORT OF THE SIXTIETH ANNUAL MEETING

Philadelphia, Pennsylvania
30 April–3 May 1987

The Sixtieth Annual Meeting of the American Association for the History of Medicine was held in Philadelphia, Pennsylvania, 30 April–3 May 1987. Sessions were held at the Holiday Inn Center City and the College of Physicians of Philadelphia. The meeting was approved for 15 hours of CME credit.

The following report, which includes the program, abstracts of the minutes of the Council and Business Meetings, as well as the financial report for fiscal year 1985–86, has been prepared by the Secretary-Treasurer, Edward C. Atwater, and is intended for the information of the members of the Association. The official minutes and financial report are preserved in the office of the Secretary-Treasurer.

PROGRAM

Thursday, April 30

6:00 p.m Welcoming Reception
7:30 p.m. Council Meeting

Friday, May 1

8:45 a.m. Welcome, Lewis L Coriell
  Jeanne L Brand, *presiding*
9:00 a.m. Health Education of Doctors and Laymen
  Ronald L Numbers, *presiding*
  "Good Health for All. The Introduction of Human Physiology into American School Curricula," Elizabeth Lomax
  "Dr Clarke vs the 'Ladies': The Social Use of Medical Knowledge in the 1870s," Maxine S. Seller
  "The Rise and Fall of the Internship," William G. Rothstein
11.00 a.m. A. Medicine in Art, Photography and Literature
    Ynez O'Neill, *presiding*
    "Medieval Islamic Anatomical Illustration A Preliminary Report," Emilie Savage-Smith
    "Francis X. Dercum and *Animal Locomotion*," Michael McVaugh
    "Johann Weyer's *De Praestigiis Daemonum.* Witchcraft and Psychiatry in the Renaissance," George Mora
  B. Women in Medicine and Nursing
    Sandra L. Chaff, *presiding*
    "Without Compromise of Delicate Feelings. The Graduation of the First Six Women Doctors from Western Reserve College," Linda L. Goldstein

Bull. Hist Med, 1987, *61* 431–441

"Tension at the Bedside. Physician-Nurse Relationships, 1830–1865," Patricia O'Brien
"The Visiting Nurse Service of the Metropolitan Life Insurance Company, 1909–1953" Diane Hamilton

12:45 p.m. Luncheon Workshops
1. "NIH and FDA Case Studies in Emerging Historical Programs," Victoria Harden and Suzanne White
2. "Archival Resources: Nursing, Aerospace Medicine, Anatomy," Lilly Sentz, Mary Ann Hoffman, Christopher Hoolihan
3 "Physicians as Antiquarian Booksellers," Jacob Chernofsky (moderator), James Tait Goodrich, Norman Shaftel, D.J Canale, Andrew Nadell

2:30 p.m A Colonial American Medicine
Whitfield J Bell, Jr , *presiding*
"Medicine and the Household: The Diary of Elizabeth Drinker and Medical Practice in Colonial Philadelphia," Sarah Blank Dine
"The Identity of the New England Indian Epidemic of 1616–1619," Timothy L. Bratton
"Albert the Noorman. Colonial American Attitudes Toward the Neighbor Insane," Jacques M Quen
B Nineteenth-Century Surgery
Gert H. Brieger, *presiding*
"John Snow's Early Researches in Anesthesia," Roderick Calverley
"The Unpublished Letters of William Halsted and Harvey Cushing," Ira M Rutkow
"The Laboratory and the Clinic. The Impact of Pathology on Surgical Diagnosis at the Glasgow Western Infirmary, 1875–1910," L S. Jacyna

5.00 p m Honors and Awards Session
Jeanne L Brand, *presiding*
Student Essay Awards
William Osler Medal
R H Shryock Medal
William H. Welch Medal Award
The Fielding H Garrison Lecture
"On the Spot A History of Focal Infection," Barbara G Rosenkrantz

Saturday, May 2

8:30 a.m. A Nineteenth-Century American Medicine
John Harley Warner, *presiding*
"Fractured Confidence: Aspects of Medical Malpractice in the Nineteenth Century," Kenneth De Ville
"Biomedical Research and the Bureau of Animal Industry," Eric P Sandgren
B. History of Psychiatry
John C Burnham, *presiding*

"'A House of Cure' The Antebellum South Carolina Lunatic Asylum," Peter McCandless

"Animal Magnetism and Multiple Personality: History of a Theoretical Relationship," Eric T. Carlson

"Model Science. The American Psychiatric Association's Attempt to Set Scientific Standards in Psychiatry," Jack D Pressman

C French Medicine

Caroline C. Hannaway, *presiding*

"Medical Geography and the Political Economy of Colonial Settlement in the New French Empire," Michael A. Osborne

"The Ordinance of 1724. A Critical Juncture in the History of French Medicine," Kathleen Wellman

"Triage for Health Care in a Metropolis. Paris Under Napoleon," Dora B. Weiner

10:30 a.m A. Twentieth-Century Medicine I

Joel Howell, *presiding*

"The 1917 New York Biopsy Controversy: A Question of Surgical Incision and the Promotion of Metastases," James R. Wright, Jr.

"The Angina Pectoris Controversy During the 1920s: Why Was the Coronary Theory Accepted?" Reidar K. Lie

"The Army Medical Department and the Attack on Pearl Harbor," Mary Ellen Condon-Rall

B Infections Science and Society

"History of the Condom," Ronald O. Valdiserri

"Policing the Body: Criminological Metaphor in the Popularization of Germ Theories in the United States, 1870–1950," JoAnne Brown

"Background to the Bacteriophage Controversy," Alan W. Varley

C. British Medicine

John M. Eyler, *presiding*

"Thomas Beddoes's Opinions on Oxygen Lack and their Consequences," Norman A. Bergman

"Lambert vs Simon: Alternate Visions of Public Health in Victorian England," Ronald D. Cassell

"Coroners' Juries and Occupational Death in England, 1830–1850," Elisabeth A. Cawthon

2:00 p.m A. Reproductive Medicine

Diana E Long, *presiding*

"Defining Disease. Knowledge and Practice of Obstetrics in the Old South," Steven M. Stowe

"The Emergence of Reproductive Science in the United States, 1910–1940. An Intersection of Medical, Biological and Agricultural Work," Adele E. Clarke

"Joseph B. DeLee and the Practice of Preventive Obstetrics," Judith W Leavitt

B Scottish and British Medicine

Guenter B. Risse, *presiding*

"Surgeon-Apothecaries in Edinburgh, 1695–1730," Rosalie Stott

"Indigenization of the Western Medical Profession during the Nineteenth Century, with Special Reference to South India," John J. Paul
"American Jewish Medical Students in Scotland, 1925–1940," Kenneth E. Collins
C. Twentieth-Century Medicine II
"Pioneering in Family-Centered Maternity and Infant Care: Edith B. Jackson and the Yale Rooming-In Project," Sara Lee Silberman
"Founding the American Women's Hospital Service, 1917–1918. Heroism vs. Professionalism," Ellen S. More
"The American-Soviet Medical Society: Henry E. Sigerist's Last Political Contribution," Walter J. Lear
4:00 p.m. Annual Business Meeting
6.00 p.m. Banquet

Sunday, May 3

9:00 a.m. A. Philadelphia Medicine
Charles E. Rosenberg, *presiding*
"Almshouse as Gatekeeper: Access to Care at the Philadelphia Hospital, 1865–1885," Gail E. Farr
"Medicine in a Philadelphia Neighborhood: Doctors and Patients in Old Germantown," Lisabeth M. Holloway and Steven J. Peitzman
"Public Health and the Demographic Revolution in Philadelphia, 1870–1900," Gretchen A. Condran and Edward T. Morman
"Dr. Nathan Francis Mossell and Philadelphia's Black Hospitals, 1895–1905," Vanessa Northington Gamble
B. Varia: Antiquity to the 1900s
Saul Jarcho, *presiding*
"Ancient Medicines: Byproducts of Copper Mining in Cyprus," Giraud V. Foster
"The Reliability of the Evidence of the Senses. Galen and Harvey on the 'Pores' in the Heart," Elinor Lieber
"Medicine and Morality in Seventeenth-Century English Moral Theology," Darrel W. Amundsen
"Career Contingencies and Organizational Change in the Development of a Medical Specialty. American Pediatrics in the Early 1900s," Sydney Halpern

MINUTES OF THE ANNUAL MEETING OF THE COUNCIL

30 April 1987

The annual meeting of the Council of the American Association for the History of Medicine, Inc., was called to order at 8:00 p.m. in the Sully Room of the Holiday Inn Center City, Philadelphia, Pennsylvania. President Jeanne L. Brand served as chair and Edward C. Atwater as secretary. The following Council members were present: Guenter B. Risse (Vice President), Robert P. Hudson (Immediate Past President), Roderick Calverley, Toby Gelfand, William H Helfand, Richard J Kahn, Janet K Kubinec-Sutton, Kenneth M. Ludmerer, Steven J. Peitzman, Dale C. Smith, Patricia Spain Ward, and James C Whorton. Absent: K Garth Huston, Regina Morantz-Sanchez. Todd L. Savitt, chair of the Committee on Annual Meetings, was present by invitation.

Dr. Brand welcomed the four new members of the Council. The minutes of the 1986 meeting were approved. An abbreviated version was published in the Fall 1986 issue of volume 60 of the *Bulletin of the History of Medicine*

The Secretary reported that there had been a small, but steady, increase in membership, a little over 6 percent in the past four years. At the end of the 1985–86 fiscal year there were exactly 1,300 individual members and 32 Constituent Societies in the Association No applications for membership in the International Society for the History of Medicine were received during the year from AAHM members.

The Treasurer presented the financial report for the fiscal year 1 November 1985–31 October 1986. The report was approved for presentation at the annual business meeting and appears in this issue of the *Bulletin* The President appointed Peter Olch and G. S T Cavanagh as auditors. The Treasurer was authorized henceforth to have the account books of the Association audited annually by a professional accountant. The said accountant would also prepare the Association's federal income tax return. The Treasurer was authorized as well to sell stock given to the Association.

The following committee reports were received by the Secretary and were presented to the Council.

The William Osler Medal Committee (Thomas E Cone, Jr, Chair) selected David Leibowitz of New York University for his essay, "Scientific Failure in an Age of Optimism: Public Reaction to Robert Koch's Tuberculin Cure." Honorable mention was given to David M Bishai, University of California School of Medicine, San Diego, for his essay, "The History of Food Fortification in America," and to Gene Nakajima, Johns Hopkins University School of Medicine, for his essay, "Gertrude Stein's Medical Education at Johns Hopkins" Eighteen essays were submitted in the Osler contest Other members of the committee were Saul Benison, Eric T Carlson, Lawrence D. Longo, and Leonard G. Wilson

The Richard H. Shryock Medal (Charles Rosenberg, Chair) selected Shigehisa Kuriyama, a graduate student at Harvard University presently teaching at the University of New Hampshire, for his essay, "Rethinking the History of Anatomy. The Origins of Greek Dissection" Honorable mention went to Patricia A. Watson, Johns Hopkins University School of Medicine, for her essay, "The Influence of Iatrochemistry on the Preacher-Physicians of Puritan New England" and to Micaela Sullivan-Fowler, Loyola University, for an essay titled "Tyrell's 'Internal Baths'—The Enema, Autointoxication, and Quackery in the Early Twentieth Century." Ten essays were entered in the contest. The committee also included Jerome J Bylebyl, Stanley W. Jackson, Dora B. Weiner, and James Harvey Young.

The William H. Welch Medal Committee (John C Burnham, Chair) chose James H Cassedy to be honored. From his many publications, the Committee cited two in particular, *American Medicine and Statistical Thinking, 1800–1860* (Harvard University Press, 1984) and *Medicine and American Growth, 1800–1860* (University of Wisconsin Press, 1986) The Committee called "these works notable because of the way in which Dr. Cassedy connects physicians in one particular cultural setting with medical and scientific thinking throughout the world and at the same time with their own society." Serving as members of the Committee were G S. T. Cavanagh, David L. Cowen, and Charles G Roland

The Garrison Lecture Committee (James H Cassedy, Chair) chose Vern L. Bullough of the State University College at Buffalo, New York, for the lectureship Victoria A. Harden, Pauline M. H. Mazumdar, W. Robert Penman, and Daniel L. Weiss were Committee members.

Todd L Savitt, Chair of the Committee on Annual Meetings, presented a summary of his committee's deliberations After considerable discussion, the Council passed several resolutions and made recommendations as follows a) resolved not to extend the duration of the annual meeting beyond two-and-one-half days, b) resolved not to reserve time on a recurring basis for any area of research or constituency, c) rescinded the motion passed in 1986 prohibiting a presentation by the same speaker in successive years; d) supported the present policy of appointing a member of the Local Arrangements Committee to the Program Committee; e) recommended that invited commentators not be used as a general rule; f) recommended that the Osler and Shryock medal essays not be presented routinely at the annual meeting, g) voted to prohibit Program Committee members from presenting papers or serving as session chairs at the annual meeting. Program Committee members may participate in invited symposia or may organize or participate in pre-arranged luncheon sessions, h) recommended that the costs for continuing medical accreditation be absorbed into the registration fee rather than be charged for individually; i) voted commendation to the Meetings Committee for its work; j) voted thanks to the 1986 Local Arrangements Committee for the Rochester meeting

Thanks were expressed to the Membership Committee for its active work during the year (William H Helfand, Chair, Richard J. Kahn and Steven J Peitzman)

The members of the Publications Committee, formerly the Editorial Committee —Kenneth M. Ludmerer (Chair), Chester R. Burns, Ynez V. O'Neill and Caroline Hannaway (ex officio)—were thanked for their work It was during the tenure of this Committee that a new arrangement with the Johns Hopkins University Press was agreed upon. There was a brief discussion of this arrangement which was described in greater detail last year.

Other committee reports received by the Secretary but not discussed at the Council meeting were as follows: Saul Jarcho, Chair of the NLM Translation and Publication Program Committee, reported the publication of four books: Rudolf Virchow, *Collected Essays on Public Health and Epidemiology* (edited by L.J Rather), *The Autobiography of Karl Ernst von Baer* (edited by Jane Oppenheimer), Charles Turner Thackrah, *The Effects of the Arts, Trades and Professions on Health and Longevity* and *The Life, Work and Times of Charles Turner Thackrah* by A. Meiklejohn (with a preface by Saul Benison), and John Douglas, *Medical Topography of Upper Canada* (with a preface by Charles G. Roland) Several other volumes are nearing publication The other members of the Committee were David L. Cowen, Jonathon Erlen, Genevieve Miller, Charles G. Roland, and Saul Benison.

The Education Committee, Robert J T Joy (Chair), K. Garth Huston and Peter J Cruse, is accumulating data on where medical history is taught and published outside the usual history journals and societies, with emphasis on clinical societies and journals.

The Committee on Ancient and Medieval Medicine (John Scarborough, Chair) recommended that time be set aside each year at the annual meeting for a panel on ancient and medieval medicine, that a multi-authored "state of the art" essay be prepared on the medical history activities of as many societies interested in ancient and medieval times as possible, and that the Association encourage the editing and publication of new texts and translations in ancient medicine

The President announced the formation of three new committees: the Committee on Archives and Manuscripts, John Parascandola, Chair; the Committee on Constituent Societies, Robert P. Hudson, Chair, and the Committee on the Membership Directory, John M. Eyler, Chair. It was also voted that the President appoint an ad hoc committee for long-range development. The Council voted to send a $500 donation to the National Coordinating Committee for the Promotion of History, as has been done each year in recent years.

Robert P. Hudson reported on the deliberations of the Congress of Constituent Societies held on 30 April 1987. The perceived problems were outlined and discussed. J Worth Estes reviewed the results of a survey of Constituent Societies, conducted by him three years ago. Three recommendations were made· 1) that a one-day continuing medical education session be offered, oriented toward those who have not presented medical history papers at national meetings, or who have not published such papers in refereed history journals, and would like some instruction in how to do these things. This teaching day would probably be held on the day prior to the annual meeting, 2) that the Committee develop a list of available speakers and their topics for the use of Constituent Societies; 3) that a calendar of activities related to medical history be compiled on a regular basis, and made available to Constituent Societies for distribution.

The Council approved innovations made in the 1986 *Membership Directory*

As required by the Bylaws, new members appointed to the Committee on Education were confirmed. These included Peter J. Cruse and Roderick Calverley Saul Benison, Chair, W Bruce Fye, Leonard G. Wilson, and Caroline Hannaway (ex officio) were confirmed as members of the Publications Committee. Ynez V O'Neill was confirmed as the alternate delegate to the ISHM Thomas G. Benedek had already been confirmed as the delegate.

The Secretary announced that no formal invitations had been given to the Association to meet after 1991. Dr Brand announced an invitation from the Chinese Medical Association of the People's Republic of China to the American Association for the History of Medicine to send a delegation of medical historians to China in 1988.

The President, on behalf of the Association, expressed thanks to the four outgoing members of the Council—William H. Helfand, Kenneth M. Ludmerer, Regina Morantz-Sanchez, and Steven J. Peitzman—for their service during the last three years.

The meeting was adjourned at 10.44 p.m.

Edward C. Atwater
Secretary-Treasurer

MINUTES OF THE ANNUAL BUSINESS MEETING OF THE AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE, INC.

2 May 1987

The annual business meeting of the American Association for the History of Medicine, Inc., was called to order by the President, Jeanne L Brand, at the Holiday Inn Center City, Philadelphia, Pennsylvania, at 4.10 p.m on 2 May 1987. Edward C. Atwater served as Secretary. One hundred and nineteen members were present The minutes of the 1986 meeting were approved as published in the Fall 1986 issue of the *Bulletin.*

The President read the names of members whose deaths had not previously been reported.

Joy Hume Falk, Nashville, Tennessee
Erna Lesky, Innsbruck, Austria
Joseph H. Kiefer, Kenosha, Wisconsin

The members present rose for a moment of silence

A summary of Council actions, including the state of the membership, discussions about annual meetings, deliberations of the Congress of Constituent Societies, and a summary of reports from standing committees, was presented by the Secretary

The Treasurer reported that, as a result of the dues increase in 1986, the Association was again in sound financial condition Receipts exceeded expenditures by about fifteen thousand dollars, although this amount will be reduced to about eleven thousand dollars when bills incurred during the fiscal year, but received after it ended, are paid.

The Endowment Fund has over forty-five thousand dollars. The income from the Fund is used to support publications in the Sigerist Series and to provide memberships for those receiving honorable mention in the Osler and Shryock medal contests. One thousand and twenty-three dollars have been added to the Endowment Fund in voluntary contributions so far during the 1986–87 fiscal year. The gifts ranged from five dollars to two hundred and fifty dollars.

The auditors, Peter Olch and G. S T Cavanagh, reported that the books of the Association appeared to be in order.

J Worth Estes, in the absence of Dr. Hudson, newly-appointed Chair of the Committee on Constituent Societies, reported on the Congress held two days earlier, details of which will be found in the minutes of the Council Meeting

The Nominating Committee presented the following slate for Secretary-Treasurer for two years, Edward C. Atwater, for member of the Council (three years), Francis P Chinard, Stanley W. Jackson, John Norris, and Philip M Teigen. The slate was elected unanimously. Serving on the Committee were Genevieve Miller (Chair), Gerald N. Grob and Saul Jarcho.

Announcement of the dates and places of future meetings was repeated.

1988 New Orleans, 4–7 May
1989 Birmingham, 10–13 May
1990 Baltimore, 10–13 May (N B , Thursday to Sunday)
1991 Cleveland, 30 April–3 May

The Association's delegate to the International Society for the History of Medicine, Thomas G. Benedek, announced the dates for the next International Society congress in Bologna, Italy, 30 August–4 September 1988

An announcement was also made of an invitation from the Chinese Medical Association to the American Association for the History of Medicine to send a delegation of medical historians to the People's Republic of China in 1988

New business included a request by Ranes Chakravorty that the Association go on record in favor of a postage stamp to commemorate the introduction of anesthesia. It was thought appropriate for members to do this individually; the address to which such support may be sent will be given in the next *Newsletter*

Three resolutions were presented commending the Program Committee and the Local Arrangements Committee for the 1987 meeting.

Chester Burns:

> "Recognizing the diligence of this year's Program Committee, and observing how the minds of those attending the scientific sessions became incandescent with information and inspiration, I move that the Association express its gratitude to the Committee."

Leonard G Wilson.

> "It is a special privilege for the members of the Association to meet in Philadelphia in 1987 on the occasion of the bicentennial of the College of Physicians of Philadelphia This year is also the 222nd anniversary of the founding of the University of Pennsylvania Medical School, the first medical school in the United States, and the 236th anniversary of the founding of the Pennsylvania Hospital, which from its beginning has been used for the clinical instruction of medical students The three institutions represent the rich medical life that has existed in Philadelphia for more than two centuries. Our enjoyment of our visit here owes much to the thorough, thoughtful, and most generously hospitable arrangements made by Janet L. Golden and the twenty-seven members of the Local Arrangements Committee with the help of their Patrons and Friends.
>
> Moved that the members of the Association express their keen appreciation and warmest thanks for the very kind hospitality of the Local Arrangements Committee for the 1987 meeting in Philadelphia."

James Harvey Young.

> "Having met in the City of Brotherly Love during the celebration of two notable bicentennials, that of the Constitution of the United States and that of the College of Physicians of Philadelphia, we, the members of the American Association for the History of Medicine, have been welcomed with warmth, cared for with consideration, and hosted with lavish hospitality. We, therefore, express our deep appreciation to Janet Golden and her Committee on Local Arrangements for their manifold labors on our behalf and thank also the members of the College of Physicians for greeting us so generously upon our entering their chambers "

The meeting was adjourned at 4.43 p.m

Edward C. Atwater
Secretary-Treasurer

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE, INC.

Financial Report on the Fiscal Year 1985–86 Ending 31 October 1986

Classified Statement of Receipts and Expenditures

1 November 1985–31 October 1986

General Fund

RECEIPTS

Dues:		
Members (all categories)	$42,804.44	
Constituent Societies	1,600.00	
International Society for the History of Medicine	1,240.00	
		$45,664.44
Sale of Publications.	0	
Contributions:		
Dr. and Mrs. Lester King	2,218.71	
Philadelphia College of Physicians	200.00	
		2,418.71
Refunds.		
Rochester LAC 1986 Advance Payment	1,000.00	
Rochester LAC 1986 Net Proceeds	2,918.00	
		3,918.00
Interest.		
Columbia Banking Federal—CD	2,714.35	
Columbia Banking Federal—MMII	342.25	
Bank of Boston NOW Account	783.50	
U.S. Trust Co.—MM	32.59	
		3,872.69
	1985/86 Total Receipts	$55,873.84

DISBURSEMENTS

Subscriptions to *Bull. Hist. Med.*		$25,512.00
Refunds for overpaid dues		45.00
Publications:		
Newsletter	1,973.25	
Research-in-Progress	0	
Membership Directory	0	
Bylaws revision	451.34	
Membership brochures	156.00	
Annual Meeting handbook	548.40	
		3,128.99
Annual Meeting Costs.		
Philadelphia 1987 Meeting (advance)	2,000.00	
Congress of Constituent Societies 1986	307.71	
Wrap-up breakfast meeting	69.66	
		2,377.37

Honors and Awards:		
Osler Medal	597.59	
Welch Medal	6.00	
Shryock Medal	602.21	
Garrison Lecture	0	
		1,205.80
Committee Expenses		
Education Committee	131.23	
Program Committee	57.48	
		188.71
Administrative Costs.		
Subscription Service (AAHM)	2,808.57	
Office Expenses	2,587.60	
Bank Charges	170.00	
State of New York Not-for-Profit Tax Fee	10.00	
IRS Late Filing Penalty	240.00	
Bulk Mailing Permit	50.00	
		5,866.17
Contribution.		
National Co-ordinating Committee for the Promotion of History	500.00	
		500.00
ISHM Account:		
Xerography and mailing of bylaws and letter	166.71	
Subscription service cost	125.00	
Transfer of dues to ISHM	1,100.70	
		1,392.41
	1985/86 Total Disbursements	$40,216.45

BALANCE SHEET, 1985–86

Assets 1 November 1985	$41,045.04
Receipts	55,873.84
	$96,918.88
Expenditures	40,216.45
Balance 31 October 1986	$56,702.43

MEDICO-HISTORICAL NEWS AND ACTIVITIES

CORRESPONDENCE AND REPORTS

IN MEMORIAM: ERNA LESKY (1911–1986)

Photograph by Grace Goldin

On 17 November 1986, Professor Erna Lesky died in Innsbruck (Tyrol), where she had lived since she retired in 1979 from her chair at the University of Vienna Her death was unexpected for most of us, although we had known for many years that she suffered from hypertension True, she had had to cancel her opening lecture at the International Congress of the History of Medicine at Düsseldorf in September 1986, for which she had chosen, most characteristically, the subject of "The Vienna Medical School between West and East," but in October, she delivered a speech on Auenbrugger and Haller at the annual meeting of our Swiss medico-historical society with the full verve of her outstanding personality So, she remained intellectually and socially active until the end of her life.

Erna Klingenstein, born on 22 May 1911 in Hartberg (Styria), was the daughter of a merchant. She studied medicine in Graz and Vienna (M.D 1936) and then pursued post-graduate training in pediatrics with Professor Richard Priestel of Innsbruck. Here, she met Albin Lesky, the classical philologist, and became his second wife. With him, Erna Lesky began to study Greek science and medicine, her monograph *Die Zeugungs- und Vererbungslehren der Antike und ihr Nachwirken* (1951) is a masterful presentation of the fascinating subject of ancient genetics and its long-lasting influence on scientific as well as popular thought.

In 1949, the Leskys moved to Vienna, after taking a Ph D in history and classical philology in 1956, Erna Lesky was appointed, one year later, "Privatdozentin" in history of medicine at the University of Vienna Then, her star rose rapidly. it soon became obvious that she was one of the best medical historians, not only in German-speaking countries, but in the world. In 1962, she became *Professor extraordinarius* and head of the Institute for the History of Medicine at the University of Vienna. This institute had been famous, before the "Anschluss," under the directorship of Max Neuburger (1868–1955), but now it had to be completely reconstructed This Erna Lesky did with great energy and circumspection A visitor to the beautifully renovated rooms in the stately eighteenth-century building of the "Josephinum" can hardly imagine the difficulties of her task Together with her staff, Professor Lesky reorganized the institute's library, picture collection, and museum After declining a call to the Free University of Berlin, Erna Lesky was promoted to the rank of a *Professor ordinarius* in 1966. In spite of her administrative and teaching duties and her many national and international commitments (for example, as editor of *Clio Medica*), she remained a devoted research worker and a most productive writer. It was reasonable for her to concentrate on the glorious (or less so) past of Viennese medicine (Rokitansky, Semmelweis, and so on) and the great achievements of Austrian public health in the period of the Enlightenment (van Swieten, J. P Frank, and so on), but for her, this was a matter of patriotism too. She was convinced that Austria's historical mission, in the future as in the past, would be to mediate between the different nations and cultures of Europe

Be this as it may, every one of her books and articles is a carefully documented specimen of medico-historical scholarship She spoke and wrote a beautiful, cultivated German; her style was colorful and clear at the same time. Erna Lesky's most important book, *Die Wiener medizinische Schule in 19 Jahrhundert*, was written for the six hundredth anniversary of the University of Vienna in 1965; an English translation (*The Vienna Medical School of the Nineteenth Century*) was published by the Johns Hopkins University Press in 1976. In 1976, too, the same publishers brought out her selection of Johann Peter Frank's texts on medical police in English translation.

Among her many honors, Erna Lesky cherished particularly the honorary medical degree that the University of Zurich bestowed upon her in 1978 While the international medico-historical community is deprived by Erna Lesky's death of one of its leading personalities, we as her Swiss colleagues have lost a really good friend

H. M. KOELBING

JOHN HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE: RETIREMENT

Doris Thibodeau, Librarian of the Johns Hopkins Institute of the History of Medicine, is retiring after fifteen years' service. Ms. Thibodeau obtained her M S.L.S. from Case Western Reserve University. Before joining the Institute, Doris Thibodeau had worked in the Welch Medical Library at Johns Hopkins as a cataloguer for historical materials and as assistant curator from 1967–72. During her time at the Institute, with the support of the Maurice H. Givens Fund, Doris Thibodeau presided over a great expansion of the Institute's collections, both in the acquisition of rare books and new publications, and directed the recent complex project of putting the Institute's catalogue onto an on-line computer system All those using the collections have benefited from her generous help and advice over the years. The *Bulletin* is grateful for her willingness to review books and her assistance in numerous reference queries Ms Thibodeau was President of the Association of Librarians in the History of the Health Sciences from 1982–84 We wish her well in her retirement in New Mexico

HARVEY FELLOWSHIPS AT THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

Supported by the Elizabeth Treide Harvey and A. McGehee Harvey endowment for the study of twentieth-century medicine, two post doctoral fellowships have been awarded by the Institute The two fellows are Anne Marie Moulin and Harry M. Marks. Dr. Moulin received her M.D. from the University of Paris VI and her Ph.D. from the University of Lyons. She is a research associate of the C.N R.S. in Paris She will pursue studies in the history of immunology during her year in Baltimore. Dr. Marks received his Ph.D from the Massachusetts Institute of Technology and has been an instructor in the Department of Social Medicine and Health Policy at Harvard University and a Rockefeller fellow at the Francis Wood Institute of the College of Physicians of Philadelphia. He plans to continue work on therapeutic experimentation and clinical trials during his fellowship.

ALAN MASON CHESNEY MEDICAL ARCHIVES

The Chesney Archives, first dedicated in 1978, were developed as the repository for documents pertaining to the history of the Johns Hopkins Medical Institutions. They have now become an important resource for scholars interested not only in Hopkins but in twentieth-century medicine in all its aspects To establish closer links between the Archives and the Johns Hopkins Institute of the History of Medicine, the Archives have now been made a part of the Institute under the directorship of Gert H. Brieger. As part of this new arrangement, Nancy McCall, who has been associated with the Chesney Archives since their inauguration, has been named Archivist.

ANNOUNCEMENTS

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE

Call for Papers, 1988 Annual Meeting

Those interested in presenting papers at the annual meeting in New Orleans, 4 May–7 May 1988, are reminded that the deadline for submission of abstracts is *15 October 1987* For full information on the requirements of the Program Committee (Chair: Dr Arthur J Viseltear, Section of the History of Medicine, Yale University School of Medicine, P.O Box 3333, 333 Cedar Street, New Haven, Connecticut 06510), see the announcement in the Spring 1987 issue of the *Bulletin,* vol 61, no. 1, page 99.

Committee Chairs—1987–88

Ancient and Medieval Medical History Committee—John Scarborough
Annual Meetings Committee—Todd L Savitt
Archives and Manuscripts Committee—John Parascandola
Constituent Societies Committee—Robert P. Hudson
Education Committee—Robert J. T. Joy
Garrison Lecture Committee—Frederic L. Holmes
Local Arrangements Committee—George E Leonard
Membership Committee—Richard J. Kahn
Membership Directory Committee—John M. Eyler
NLM Translation and Publication Program Committee—Saul Jarcho
Nominating Committee—Genevieve Miller
Osler Medal Committee—Peter D. Olch
Program Committee—Arthur J Viseltear

Publications Committee—Saul Benison
Shryock Medal Committee—Barbara G. Rosenkrantz
Welch Medal Committee—Elizabeth Lomax

Osler Medal Essay Contest, 1988. Students in schools of medicine and osteopathy in the United States and Canada and graduates of the class of 1987 are invited to enter the William Osler Medal essay contest. The medal, which commemorates the famed physician's interests in medicine and the humanities, is given annually in recognition of the best unpublished essay on the historical development of a contemporary medical problem or a topic within the history of health sciences by a medical or osteopathic student. The winning essay may, at the discretion of the editor, be considered for publication in the *Bulletin of the History of Medicine.* To enter, send five copies of an essay of a maximum length of 10,000 words to the Chair of the Osler Medal Committee, Dr. Peter D Olch, Section of Medical History, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Maryland 20814-4799. The deadline for submission is *15 February 1988* Further information about rules and eligibility may be obtained from Dr Olch

Shryock Medal Essay Contest, 1988. Graduate students in the humanities or social sciences in the United States and Canada, and those awarded advanced degrees in 1987, are invited to enter the Richard Harrison Shryock Medal essay contest. The medal honors Richard Harrison Shryock, a pioneer among historians interested in the history of medicine, and the essay may deal with any topic in the history of medicine that recognizes the reciprocal influence of medical science and social, political and economic conditions The winning essay may, at the discretion of the editor, be considered for publication in the *Bulletin of the History of Medicine* Contestants should submit five copies of a doublespaced, typewritten manuscript with footnotes at the end; the maximum length 7,500 words. Entries should be postmarked no later than *31 January 1988* and directed to the attention of the Chair of the Shryock Medal Committee· Professor Barbara Gutmann Rosenkrantz, Department of the History of Science, Science Center 235, Harvard University, Cambridge, Massachusetts 02138. Further details about the contest may be obtained from Professor Rosenkrantz.

NATIONAL NEWS

American Institute of the History of Pharmacy. John M. Riddle of North Carolina State University is the recipient of this year's Urdang Medal from the Institute, which honors distinguished pharmaco-historical writing. Riddle was commended especially for his landmark study, *Dioscorides on Pharmacy and Medicine* (University of Texas Press, 1985) He has published numerous other studies on ancient and medieval pharmacy and medicine.

Grants-in-aid for thesis research have been awarded to doctoral students Paula Findlen (University of California, Berkeley), Michael Harris (University of Wisconsin) and Joel Shackelford (University of Wisconsin) The Institute offers grants towards thesis expenses (master's and doctoral) for the history of pharmacy and related fields. Guidelines for next year's competition can be obtained from the AIHP, Pharmacy Building, 425 North Charter Street, Madison, Wisconsin 53706. The deadline is *1 February 1988.*

Frank L. A. Gerbode: Pioneer Cardiovascular Surgeon. This series of interviews conducted by Sally Smith Hughes is now available in a bound and indexed format with the above title. The oral history documents the late surgeon's contributions to the explosive postwar growth of open heart surgery, his invention of surgical procedures and instruments, and his collaboration in the development of a membrane heart-lung machine and in computerized patient monitoring. It also details Gerbode's major role in the institutional history of Stanford Presbyterian Hospital, subsequently Presbyterian Hospital, and now the Pacific Presbyterian Medical Center. Gerbode was a founder of the Center's Medical Research Institute, a long-term member of the board of trustees of the Center, and of the Medical Research Institute, and director of the Heart Research Institute Copies of the volume may be obtained at cost ($76.00) from the Regional Oral History Office, 486 The Bancroft Library, University of California, Berkeley, California 94720

Garrison and Morton Checklist. In completing a comprehensive survey of its journals cited in Garrison and Morton, *A Medical Bibliography* (fourth edition), the staff of the Claude Moore Health Sciences Library, University of Virginia, discovered some errors in citations An errata list has been prepared and is available upon request from Ms. Joan Echtenkamp, Historical Collections Librarian, Claude Moore Health Sciences Library, Box 234, University of Virginia Medical Center, Charlottesville, Virginia 22908

Hastings Center. A meeting on ethics and chronic illness was held by the Center from 12–13 June 1987. Participants discussed the needs of the chronically ill, the goals of medicine with respect to such patients, the responsibilities of family members toward the chronically ill and society's obligations, and the allocation of economic resources. Speakers included Larry R. Churchill and Eric J. Cassell.

Medicine's Geographic Heritage. This journal, formerly titled *Y, the Medical Inquirer,* is edited by Dr Enrique Pantoja, and published by the department of radiological sciences at Wright State University, Dayton, Ohio, for distribution to medical school libraries. Its new title reflects its change in orientation; it is now seeking to publish articles that cover medical history from a geographical viewpoint. The October 1986 issue focuses on London, with a lead article discussing the career of Sir Henry Wellcome, on the fiftieth anniversary of his death, and an annotated heritage map of medical London which records the location of memorabilia related to individuals and institutions that have contributed significantly to the development of medical science. One hundred and nineteen items are pinpointed on the map Contributions that impart a geographical flavor to medical history are invited For more information on *Medicine's Geographic Heritage,* write to the editor, Dr Enrique Pantoja, Department of Radiological Sciences, School of Medicine, Wright State University, Dayton, Ohio 45435 (Tel: 513-873-3366).

National Library of Medicine. On 3 June 1987, Thomas N Bonner, NLM Visiting Historical Scholar, addressed the history of medicine division on "The Education of Physicians in the Nineteenth Century: The Roads Taken by Britain, France, Germany, and the United States."

National Socialism and the Medical Profession. On 28 April 1987, in a discussion entitled "The Frontiers of Medical Ethics," Robert Jay Lifton and Christian Pross explored the Nazi vision of a "healthy" society, and how physicians, trained to heal, became indispensable for the Nazis' early programs of eugenics and euthanasia, and ultimately, mass murder in the death camps themselves. The symposium was part of a program which explored the widespread support within the German professions for the Nazi regime. It was sponsored by the International Holocaust Center of the Anti-Defamation League of B'nai B'rith and was held at the Center in New York City.

New Jersey. "American Medical Education: Past, Present and Future" was the subject of the annual Morris H. Saffron Lecture, delivered by Kenneth Ludmerer to the Medical History Society of New Jersey and the Academy of Medicine of New Jersey on 6 May 1987

The history of the Blue Shield insurance organization in New Jersey is the subject of a recent short book written by Alan A. Siegel. Commissioned by the board of trustees of Blue Shield of New Jersey, *Caring for New Jersey. A History of Blue Shield of New Jersey, 1942–1986,* covers the organization's forty-four years of existence, and the influences upon it of the American Medical Association and federal programs such as Medicare. The 198-page paperbound volume is available for $3.00 from Vanderbilt & Siegel, Esqs., 155 South Livingston Avenue, Livingston, New Jersey 07039

Science in Context. This new journal, edited by Robert S. Cohen, Yehuda Elkana, Gideon Freudenthal and Simon Schaffer, plans to study the sciences from the point of view of comparative epistemology and historical sociology of scientific knowledge It intends not to segregate history, philosophy, and sociology of knowledge from each other. The journal will offer comprehensive articles showing this interdisciplinary approach. The first issue includes controversies on history versus philosophical history of science, and the emergence of modern science out of the production process. The next issue will feature papers on medieval and Renaissance cosmology and on Duhem reconsidered The journal will appear twice a year in March and September Orders for subscriptions ($37.00 or £19.00 for individuals) may be directed to the Cambridge University Press offices in Cambridge, England, or New York.

Society for French Historical Studies. The thirty-third annual conference was held in Minneapolis on 19–21 March 1987 Among the sessions was one on "Medicine and the State in France," which featured the following papers· "Administrative Absolutism, Corporate Privilege, and Public Recognition· The French Medical Profession at the End of the Old Regime," Terence Murphy, "The Science of Colonial Hygiene and the Development of Algeria during the Second Empire," Michael A. Osborne; and "The Generation of 1900 Saving the Children of Marianne," Jane Crisler. Anita Guerrini served as chair of the session In another session, Robert Nye discussed "Male Sexuality and Concepts of Gender in Nineteenth-Century French Medicine."

University of Mississippi. Robert P Hudson delivered two lectures, "The Psychology of Quackery" and "The Last Illness of Franklin D Roosevelt," at the University on 6 April 1987. His talks were sponsored by the department of history and the honors program

University of Southern California, Norris Medical Library. The 1986–87 series of talks hosted by the Friends of the Library in Los Angeles included 21 October 1986, "The First Operation under Ether," Richard J Wolfe, 17 December 1986, "Greek and Roman Pharmacy and Medicine," John Scarborough, 21 January 1987, "François Rasse des Noeux: Surgeon, Book Collector, and Spy," Nicholas Barker; and 22 April 1987, "Antonio Benivieni and the Beginnings of Pathology," Irwin J. Pincus.

Wilhelm Moll Memorial Fund. The Claude Moore Health Sciences Library of the University of Virginia is pleased to announce the establishment of the Wilhelm Moll Memorial Fund, which will be used to help finance the history of health sciences lecture series and, eventually, support the continued growth of its historical collections. The Fund is designed to commemorate the late Dr. Wilhelm Moll, director of the Library from 1962–79, who had a keen interest in the history of health sciences.

PROGRAMS OF MEETINGS

Bay Area History of Medicine Club, San Francisco

January 14, 1987. "John Coakley Lettsom and the Lettsom Society," Frank Anker

February 11, 1987: "Medical Politics in Seventeenth-Century England," Andrew Nadell

March 11, 1987 "Puzzles and Personalities in Microbial Genetics," Ira Herskowitz

April 14, 1987. "The History of Human Sexuality," Thomas Laqueur

Beaumont Medical Club, Yale University, New Haven, Connecticut

January 23, 1987: "Hospitals in the 1930s: The Political Creation of the Voluntary Ideal," Rosemary Stevens (John F Fulton Fellow's Address)

February 27, 1987: "Madness and America's Last King Porphyria and King George III," Melville Roberts

April 3, 1987: "To Make the Lame Walk," Ulrich Weil

May 15, 1987. "Freud: The Physician as Psychoanalyst," Peter Gay

George W. Corner History of Medicine Society, Rochester, New York

January 21, 1987. "Who's on First? Disputed Credit in Scientific Discovery," Robert J. Joynt

March 4, 1987: "The Singular Affection of Gaspard Vieusseux (1746–1814). An Early Description of the Lateral Medullary Syndrome," John Romano

April 15, 1987: "Anatomical Illustration during the Renaissance," Christopher Hoolihan

History of Medicine Group, Stony Brook, New York

March 4, 1987: "Statistical Enterprise and Medical Leadership, 1860–1890," James H. Cassedy

Iowa History of Medicine Society, Iowa City

January 19, 1987: "Tunnelitis. Tragic Epidemic of Silicosis at Gauley Bridge," Ann Broderick; and "John Shaw Billings's Early Work in Hospital Design," Dan W Collison (John Martin Essay Prize Winners)

February 3, 1987. "Iowa Medical Service, 1946," Stow Persons

March 3, 1987. "The Death of a Virus: Resurrection of a Vaccine," Donald A. Henderson

April 3, 1987. "Research, Experience and Tradition: The Humanities in a Modern Medical Center," Joseph W. Lella

Robert Wilson Medical History Club, Charleston, South Carolina

January 8, 1987. "William Withering—The Foxglove," Hope Sandifer
March 5, 1987 "Yellow Fever in Mt. Pleasant in 1958," Walter Bonner
May 7, 1987: "The History of Sports Medicine," John G. McGinty

Reynolds Library Associates, University of Alabama, Birmingham

7 May 1987. "Optometry—A Legal History," John G Classé

Society of Medical History of Chicago

May 12, 1987. "The Professionalization of Pediatrics in the Early 1900s," Sydney Halpern

Waring Library Society, Charleston, South Carolina

April 30, 1987. "Reuben's Mandrakes. Infertility in the Bible," William B Ober

Washington Society for the History of Medicine, Bethesda, Maryland

May 16, 1987. "Treading the Elephant's Tail· The Rigors of Life on the Oregon-California Trail," Peter and Mary Olch

Washington University History of Medicine Club, St. Louis, Missouri

March 25, 1987: "Origins of the Hospital-Based Pathologist," James R. Wright

April 16, 1987. "Towards a Unified Medical Language System," Donald A. B. Lindberg

William Snow Miller Society, University of Wisconsin, Madison

February 20, 1987 "Impact of Experimental Surgery on Physiological Thought," Saul Benison

March 25, 1987: "Conduct Unbecoming of a Woman. The *Brooklyn Eagle* vs Dr. Mary Dixon-Jones," Regina Morantz-Sanchez

April 23, 1987· "The New Psychiatry in Twentieth-Century America. The Menningers as a Case Study," Lawrence Friedman

NEWS FROM ABROAD

Australia. The University of Melbourne Medical School celebrates its one hundred and twenty-fifth anniversary in 1987, dating from the establishment of a medical school at the University in 1862. Its first professor, George Britton Halford, held the first anatomy classes in Australia in 1863, in his own home. By 1883, the school had more than eighty graduates and a five-year course of instruction, which was not common at that time anywhere in the world. Women were admitted to the medical course in 1887. Among distinguished graduates of Melbourne are Frank Macfarlane

Burnet, Kate Campbell, and Jean Macnamara A special exhibit has been mounted in the Medical History Museum in Melbourne in honor of the anniversary

Chinese Journal of Medical History. This quarterly publication of the Chinese Medical Association, formerly the *Journal of Medical History and Health Organization,* is issued from the Academy of Traditional Chinese Medicine in Beijing. The journal has an editorial board composed of twenty-two representatives from units or departments of medical history in the People's Republic of China, and publishes research essays and other data dealing with the history of medicine in the East and West Its honorary president is Qian Xinzhong, the former head of the Ministry of Health of China, and its president is Cheng Haifeng, former director of the Bureau of Science and Medicine of the Ministry of Public Health of China. This year, the journal celebrates its fortieth anniversary, and a special commemorative number will be issued.

Czechoslovakia. The fourteenth international congress of biochemistry will be held in Prague, 10–15 July 1988, and will include a symposium on the history of biochemistry for the first time. The invited speakers for the symposium, titled "Development of the Structure of Modern Biochemistry," are John S. Fruton (U.S.A.), E. Hickel (West Germany), Frederic Holmes (U S.A.), A. N Shamin (U.S.S.R), and S. Štrbàňovà (Czechoslovakia). The symposium is designed to explore the interaction of chemistry with biology and medicine and its role in modern science. The official language of the congress is English For further information, write to Fourteenth International Congress of Biochemistry, 166 50 Prague 6, Czechoslovakia.

Denmark. Ivan Katić offers, with his compliments, a few remaining copies of his thesis, *Dansk-russike veterinaere forbindelser, 1796–1976* [*Danish-Russian Veterinary Relations*], (Copenhagen, 1982, 319 pages, paperbound) to interested persons or institutions. Please write to him in care of *Historia Medicinae Veterinariae,* Søndergade 39, DK-4130 Viby Sjaelland, Denmark.

Italy. The thirty-third Italian congress of history of medicine, sponsored by the national society, will be held from 24–26 September 1987, in Sulmona. The themes are medicine and theatre, medicine and archaeology, and a special session in homage to the Deputazione di Storia Patria Abruzzese "Anton Ludovico Antinori" which celebrates its centenary in 1987–88 A roundtable discussion on history of medicine in medical school teaching today is also scheduled

Japan. The twelfth annual international symposium on the comparative history of medicine—East and West is taking place at the Fuji Institute of Education and Training in Susono-shi, Shizuoka, from 30 August–5 September 1987. The theme is the history of hygiene and papers include "Policing the Food Trades: Epidemiology, Hygiene, and Public Administration in Edwardian Brighton," John M. Eyler (U.S.A.), "People's Participation in Health Care in Japan," Chieko Kawata (Japan); "Medicinal Treatment Based on Hygienic Ideas in Chinese Medicine—Looking from the 'Xiao Ping Fang' of the Fifth Century A.D and the 'Qan Jin Fang' of the Seventh Century A.D.," Makoto Mayanagi (Japan), "Historical Consideration of the Social Development of 'Hygiene' in Modern Japan," Hiroshi Mizuno (Japan); "Health, Hygiene and Longevity in Renaissance Italy," Richard J Palmer (United Kingdom), "The Methods and Thoughts of Nourishing Vitality in Ancient China," Yoshinobu Sakade (Japan); "Inner Hygiene. The Philosophy and Practice of Intestinal Purity in Western Culture," James

Whorton (U.S.A.), "Introduction of Western Concepts and Practice of Hygiene to Japan During the Nineteenth Century," Shunichi Yamamoto (Japan), "The Medicinal Water in Korea," Byeong Kil Yeon (Korea); and "Dietary Hygiene and Allied Literature in the Ming Dynasty of China," Jin Sheng Zheng (China) The symposium is organized by Professor Yosio Kawakita of Juntendo University and is sponsored by the Taniguchi Foundation

Modern Medicine: Its Roots in Venice and Padua. A seminar on this topic took place in Venice and Padua from 5–12 July It was sponsored by the Bowman-Gray School of Medicine, Wake Forest University. Participants studied the role of the two cities in medical history, with lectures on Western medicine and hospitals, the contributions of Venetian and Jewish physicians to medicine, mental illness, infections and the plague, and anatomy and medical illustration and with visits to Venetian and Paduan hospitals, and the University of Padua medical school

The Netherlands. The Genootschap voor Geschiedenis der Geneeskunde, Wiskunde, Natuurwetenschappen und Techniek and the British Society for the History of Science met in Leusden for a joint Anglo-Dutch history of science conference from 9–12 April. Among the papers given were "Seventeenth-Century Dutch Microscopy," M Fournier; and "Sex on the Brain. Making Sense of Phrenology," M. Shortland, in a session for which Harm Beukers served as chairman, and one on "Cardiology in the Nineteenth Century," F. N. Groustra. John Pickstone served as chairman for a session on the history of genetics and microbiology, which included "National Styles, Institutional Contexts, and the Development of Genetics," Jonathan Harwood; "Development of Genetics in the Netherlands," R. P. W. Visser, and "Approaches to the Problem of Bacterial Transformation," O Asterdamska.

Society for the Social History of Medicine, Great Britain. The Society, in association with the Health Economists' Study Group, held its annual conference at the University of York, 3–5 July 1987. The weekend conference was devoted to the economics of health and medicine, with the following program: "The Profits of Practice. Medicine and Money in Later Medieval England," Carole Rawcliffe, "Medicine and Economic Incentives in the Early Modern Period," Margaret Pelling; "The Financial Attractions of Being a Dentist in the Early Nineteenth Century," Christine Hillam, "The Economic History of Psychiatric Hospitals in the United Kingdom and Ireland since 1850," James Raftery, "Prosperity and Poverty in General Practice, 1750–1850," Irvine Loudon; "West Riding Medical Practice from Nineteenth-Century Census Data A View of the Region and Selected Towns," Philip Swan and Hilary Marland, "Profit and Loss of the New Hospital Nurses," Christopher Maggs, "Working Class Primary Medical Care Before the NHS· Are There Any Lessons?" David Green, "Money in the Pills· The Early History of the Pharmaceutical Industry," Roy Porter, "The MRC and the Pharmaceutical Industry," Jonathan Liebenau, "X-Ray Technology and the Structure of the U.K. Radiological Equipment Industry Since 1945," John Hutton; and "The Development of Health Economics as a Sub-Discipline and its Relevance to Policy Making in the NHS," Malcolm Ashmore.

Social History of Medicine: The Journal of the Society for the Social History of Medicine will begin publication in 1988. The journal hopes to provide an international and interdisciplinary perspective on the social history of medicine. The editors, Dr. Linda Bryder, Queen's College, Oxford OX1 4AW, and Dr Richard Smith, All

Souls College, Oxford OX2 4AL, are seeking contributions on all aspects of health, illness, and medical treatment. The journal will be issued three times a year. Subscription enquiries should be directed to the Oxford University Press, Journals Subscription Department, Walton Street, Oxford OX2 6DP, England, U.K.

Wellcome Institute for the History of Medicine. Speakers discussed "Medicine and the Five Senses" in a two-day symposium that took place at the Institute on 11–12 June 1987. Contributors were: Vivian Nutton, "Galen at the Bedside: The Methods of a Medical Detective", Elizabeth Sears, "The Five Senses and Human Anatomy: A Study in Medieval Teleological Thinking", Martin Kemp, "Looking and Learning. The Role of Illustration in the Anatomical Revolution"; Lawrence Brockliss, "Seeing and Believing: Contrasting Attitudes to Observational Autonomy among French Galenists in the First Half of the Seventeenth Century", Jerome J. Bylebyl, "The Manifest and the Hidden in the Renaissance Clinic", Richard Palmer, "In Bad Odour: Smell and its Significance in Pre-Modern Medicine"; L J Jordanova, "The Art and Science of Seeing in Medicine: Physiognomy, 1720–1820", Roy Porter, "A Soft Touch? The Man-Midwife as a Man of Feeling", Malcolm Nicolson, "Percussion, Auscultation and Stethoscopy in Early Nineteenth-Century Scotland", Susan Lawrence, "Educating the Senses: Students, Teachers, and Medical Rhetoric in Eighteenth-Century London"; Sander Gilman, "Touch and Sexuality"; Sir Christopher Booth, "Technology and Clinical Instinct."

An earlier symposium, on 22 May 1987, centered on "Museums: Classification and Knowledge." Presentations included "Return of the Living Dead. Anatomy Museums in the Enlightenment," Christopher J. Lawrence, "Microscopes, Medicine and Museums," Brian Bracegirdle; "Displaying Medicine: A Special Case for Technology," Ghislaine Lawrence, "Museums of Mankind?" L J Jordanova; "Richard Owen and the Founding of the British Museum of Natural History," N A. Rupke, "The 1850s. Uncertain Times," Robert Anderson, "Classifying Mankind: Anthropology and Museums in the Victorian Period," David van Keuren; and "Pathology and Power: The Meaning of Museums in Early Victorian Provincial Hospitals," John Harley Warner.

GRANTS FOR RESEARCH

Osler Library of the History of Medicine. The Osler Library of the History of Medicine is offering two one-month fellowships, each with a stipend of $Can. 1,200, designed to assist those with research interests in the history of medicine that are relevant to the Library's collection. The Scholar's Fellowship is for physicians and historians engaged in specific research projects. The Student's Fellowship is aimed at medical students who desire to broaden their background in medical history through a reading program based on the Library's collection. Applicants for both programs should submit a curriculum vitae. In addition, for the Scholar's Fellowship, a description of the project, with detailed information on planned use of the collection should be included. Applicants for the student fellowship should also submit two letters of reference from teaching staff of their medical school, and an outline of their proposed reading program. Applications or requests for further information should be addressed to Dr. Faith Wallis, Osler Library, McGill University, 3655 Drummond Street, Montreal, Quebec H3G 1Y6, Canada. The deadline for applications is *31 December 1987*.

Rockefeller Archive Center Grants The Rockefeller University invites applications for grants of not more than $1,500 from graduate students or postgraduate scholars of any discipline who are engaged in research requiring use of the historical collections at the Rockefeller Archive Center The size of individual grants is dependent upon the travel, temporary lodging, and research expenses of the applicant. Enquiries about the program and requests for applications should be addressed to the Director, Rockefeller Archive Center, Pocantico Hills, North Tarrytown, New York 10591. Deadline for the 1988 grants. *31 December 1987.*

NLM VISITING HISTORICAL SCHOLARS PROGRAM

National Library of Medicine. The National Library of Medicine supports an annual program to bring recognized historical scholars to the Library's History of Medicine Division to engage in research, scholarly interchange, and staff consultation for a period of six to twelve months.

The Library will select one individual for the 1988–89 NLM Visiting Historical Scholars Program. Applications are now being solicited from individuals who are United States citizens Applicants, who may be health professionals, historians, librarians, scientists, or other professionals, must have had extensive training or experience in medical history or a related field, together with a demonstrated record of productivity in pertinent historical scholarship of a high level Normally, only those who are at mid-career or senior levels will be considered, and awards will not be renewable Applicants may apply to spend anywhere from six to twelve months as the NLM Visiting Scholar during the period 1 September 1988 through 31 August 1989

The individual selected will be given financial remuneration commensurate with his or her current salary (not to exceed $67,940), and fringe benefits. In return, the scholar will be expected to devote himself or herself to a specific and well-defined research project which will focus explicitly on and extensively utilize NLM's collections The scholar will be required to spend most of his or her time in residence at the NLM, except for incidental trips for meetings or occasional collateral research He or she will be expected to give one public lecture and one historical staff seminar related to his or her research and to be available for consultation with the NLM staff members The scholar will also be asked to devote some time to a project, to be mutually agreed upon, that contributes to the NLM's service mission, such as assessing the Library's historical collections and/or programs in his or her area of expertise.

Completed applications must be received at the NLM on or before *1 February 1988.* Application forms may be obtained from the Chief, History of Medicine Division, National Library of Medicine, 8600 Rockville Pike, Bethesda, Maryland 20894 (Tel. 301-496-5405).

JOB OPPORTUNITIES

Memorial University of Newfoundland. The Faculty of Medicine of the Memorial University of Newfoundland invites nominations or applications for the position of the John Clinch Professor for the History of Medicine The successful candidate will have demonstrated excellence in teaching and scholarly work in the history of medicine, a significant record of research or professional achievement and the ability to interact effectively with faculty and students in the health sciences, biology, history, and philosophy. The major responsibilities of the position would be graduate and undergraduate teaching and scholarly work in the history of medicine. Other duties would be to chair the history of medicine group, to organize its activities, and to develop the historical collection of the library in collaboration with the Health Sciences Librarian. A medical degree would be an asset but is not required. A higher degree in a health science, history, or a related discipline is expected

Enquiries or applications, including a current curriculum vitae and names and addresses of three references, should be sent by *15 October 1987* to Dr. D Bieger, Faculty of Medicine, Health Science Center, Memorial University of Newfoundland, St. John's, Newfoundland A1B 3V6, Canada The appointment would be effective 1 October 1988. In accordance with Canadian Immigration requirements, this announcement is directed only to Canadian citizens and permanent residents

University of Geneva The Louis Jeantet Foundation for Medicine, one of whose aims is to sponsor the development of research work at the Faculty of Medicine of the University of Geneva, is seeking applicants for a professorship in the history of medicine at the University, to be funded by the Foundation Candidates should submit, under strict confidence, curriculum vitae and a list of publications and research projects to the Secretary of the Science Committee, The Louis Jeantet Foundation for Medicine, Box 140, CH-1211 Geneva 17, Malagnou, Switzerland. The deadline for applications is *31 December 1987*

ESSAY REVIEWS

MEDIEVAL ENGLISH MEDICINE

FAYE MARIE GETZ

ROBERT S. GOTTFRIED. *Doctors and Medicine in Medieval England, 1340–1530.* Princeton, New Jersey: Princeton University Press, 1986. xvi + 359 pp. Ill. $45.00.

Three topics have traditionally dominated the study of medieval English medicine. The first has been a history of English surgery. Medieval surgeons seem to many to present a practical, no-nonsense approach to problems, a kind of ancestry for modern "curative" medicine that sometimes seems to be a refreshing contrast to the logic-chopping of the learned physicians. The story of surgeons' operations, instruments, and military adventures thus forms the basis for work by medical historians such as Sir D'Arcy Power and George Gask (who were surgeons themselves).[1] The second topic, the study of the development of the medical profession, is a relative latecomer to the medical-historical debate, an offshoot of the growing interest in what is called the "social history of medicine." Most scholars will be familiar with the work of Vern Bullough on the subject,[2] and the model of Pelling and Webster's account of practitioners in the early modern period no doubt one day will serve for the late medieval period as well.[3] The major scholarly resource for research in the field is C. H. Talbot and E. A. Hammond's *The Medical Practitioners in Medieval England. A Biographical Register*[4] (hereafter cited as "T & H"), whose prosopographical resources have yet to be exploited. The third *locus classicus* of medieval English medicine is, of course, the so-called Black Death, which more than decimated western Europe in the middle of the fourteenth century, and without which the medieval period would hold for many medical historians no attraction whatsoever.

Robert S. Gottfried, a historian at Rutgers University, has touched on some of these themes in his previous monographs.[5] In his most recent book, *Doctors and Medicine in Medieval England, 1340–1530,* Gottfried tries to synthesize the three topics. The Black Death, he argues, did away not only with educated physicians, but

---

[1] Especially D'Arcy Power's *Treatises of Fistula in Ano, Haemorrhoids and Clysters, by John Arderne,* Early English Text Society, original series no. 139 (London, 1910), and George E. Gask's *Essays in the History of Medicine* (London: Butterworths, 1950). Also R. Theodore Beck, *The Cutting Edge: Early History of the Surgeons of London* (London: Lund Humphries, 1974).

[2] Vern Bullough, *The Development of Medicine as a Profession: The Contribution of the Medieval University to Modern Medicine* (New York: Hafner, 1966). See also Edward J. Kealey, *Medieval Medicus: A Social History of Anglo-Norman Medicine* (Baltimore: Johns Hopkins University Press, 1981).

[3] Margaret Pelling and Charles Webster, "Medical Practitioners," in *Health, Medicine and Mortality in the Sixteenth Century,* ed. Charles Webster (Cambridge: Cambridge University Press, 1979), pp. 165–235. Also, Margaret Pelling, "Occupational diversity: barbersurgeons and the trades of Norwich, 1550–1640," *Bull. Hist. Med.,* 1982, *56:* 484–511.

[4] (London: Wellcome Historical Medical Library, 1965).

[5] *Epidemic Disease in Fifteenth-Century England: The Medical Response and the Demographic Consequences* (New Brunswick, New Jersey: Rutgers University Press, 1978), *Bury St. Edmunds and the Urban Crisis, 1290–1539* (Princeton, New Jersey: Princeton University Press, 1982), *The Black Death: Natural and Human Disaster in Medieval Europe* (New York: The Free Press, 1983). *Doctors and Medicine* relies most heavily on *The Black Death.*

Bull. Hist. Med., 1987, *61:* 455–470

also with much of Galenic physic itself. Physicians, powerless against the Black Death, were forced to make way for the "rise of surgery" (accompanied by the rise of a bourgeois middle class, or middle stratum as Gottfried sometimes calls it). Gottfried finds in medieval surgery the roots of its modern counterpart. "It would be from the surgeon's scalpel and not the physician's manuscript that clinical medicine would evolve" (p. 3). This "rise" of surgery was aided by the bellicose ways of late medieval and early Tudor monarchs. "On the battlefield they [surgeons] were able to experiment with techniques . . . to dissect bodies . . . to share these methods and other ideas with colleagues" (p. 4). Surgeons' success in battle attracted royal patronage, which led in 1423 to the establishment of the "College of Medicine" in London and strengthened the London Fellowship of Surgeons, "the two most enlightened medical institutions in later medieval England" (p. 4). Gottfried is nothing but revisionist when he suggests that the life of this infant medical revolution was cut short by "the foundation of the Royal College . . . [which] marked the end of the period of innovation, discouraged clinical practice, and was less innovative than its fifteenth-century antecedent, the College of Medicine" (pp. 4–5). The critical time period for Gottfried's argument is thus between about 1348 and 1518, when discredited physic became moribund and dynamic surgery rose due to the Black Death and warfare.

To succeed in his argument, Gottfried must use the textual and prosopographical evidence he marshals to convince us that great social and intellectual changes took place in the medical community and society at large due to plague and war, changes that were stifled by the "Royal College" (i.e., the London College of Physicians) in 1518. But there are serious problems with Gottfried's description of change, his explanation for change, and his use of evidence to document that change.

The description of change in surgery due to warfare, for instance, illustrates the manner in which the author makes his arguments. Gottfried claims that the surgical experience of English surgeons on the battlefields of France made them "better [than the physicians] because of their clinical practice" (p. 310). However, Gottfried gives no examples of battlefield dissections or consultations, or of general wartime changes in surgery or medicine. What is more, he neglects to reckon with the fact that medieval physicians were obsessively "clinical," observing their patrons with enormous care. Instead of offering evidence for the ways in which warfare made the surgeons better than physicians, the author is content to expose the general warlike dispositions of English kings beginning with Henry III, an "ironically placid" king, and we find, not surprisingly, that royal households and battle retinues tended to have more surgeons as time passed. The reign of Richard II is judged "not noteworthy" (p. 110) (too few wars), and the reign of Henry IV "inconsequential" (p. 142) for the same reason. Henry VIII is variously said to have maintained battlefield activities (on p. 157, for example), or to have let them slack off except in "the Netherlands" (on p. 280). Either way, his reign was less important than that of Edward III, for Edward's combined both wars and plague: "From these two disasters would evolve the finest medical care of the middle ages" (p. 136). Finest for whom? As compared to what? Extrapolation from the experiences of a few elite practitioners to any other groups must be handled with the greatest care. And yet the reader is asked to swallow such glib assertions without explanation. By the time the Tudors came around, both plague and war allegedly had fallen off, causing dynamic surgeons to become "sunk in inertia," and allowing discredited physic to take over once again. "It would be another two hundred years before English medicine became effective" (p. 280).

That physic was able to rise again so powerfully raises the question of whether it was ever truly discredited at all. Gottfried makes much of the supposed war between physicians and surgeons, as physicians defended their learning against the skills of the increasingly popular surgeons. The alliance of the two groups in 1423 is painted as "innovative" and "enlightened," a manifestation of this rise of surgeons. It offered proof of how the Black Death forced physicians "to seek legislative approval and assurances" (p. 63). But it is difficult to see how this alliance demonstrates anything more than the increasing power of learned physicians and the desire of the few learned surgeons in London to share in the reflection of physic's educated glory. The ordinances of this alliance are extensive and, considering that Gottfried believes them to be those of one of the two most enlightened medical institutions of the late medieval period, are examined only superficially. If one does take the trouble to read them, then the physicians hardly come across as discredited. The *"Comminalte"* of physicians and surgeons (called by most historians the "Conjoint College of Physicians and Surgeons" and by Gottfried the "College of Medicine"—the ordinances use neither term) set up a hierarchy of membership, with a Rector at its head who would be an M.D., an M.A., or a *"bachiler in medicyns of long tyme, in vertue and konnynge approued"* i.e., a university-educated, morally upright, experienced man, *"if eny suche may be found."*[6] This Rector (Oxford chancellor Gilbert Kymer, M.D., was the first and only) was to govern over two surveyor surgeons and two surveyor physicians. University physic was by the surgeons' consent placed at the top of the hierarchy. (The ordinances in no way support Gottfried's assertion that the "College" had a "curriculum" [p. 21], he also claims a curriculum for the "Royal College" on p. 4.) The *"Comminalte"* lasted for only eighteen months or so, its leaders being occupied elsewhere, and the body's only recorded action was to oversee a charge of surgical misconduct (Gottfried attributes to it "a few malpractice cases" on p. 63, up from one on p. 34). The subsequent alliance between the Fellowship of Surgeons and the Barbers Company in 1493[7] suggests more that it was the learned surgeons than the physicians who suffered identity problems. What there was about either the College of Medicine or the Fellowship of Surgeons that justifies the kind of praise Gottfried heaps upon them is, like the activities of English surgeons on the battlefield, left largely to the reader's imagination.

The prosopographical underpinning for most of Gottfried's social arguments is a computer-generated "doctors' 'data bank,'" "one of the largest and most comprehensive . . . for any group of late medieval Englishmen" (p. 8). Instructive comparisons might have been drawn between Gottfried's computerized findings and those of Danielle Jacquart for medieval France. But this is scarcely even hinted at. Rather, Gottfried simply claims that his data base contains information on 2,282 medical practitioners between 1340 and 1540 (thus exceeding the relevant entries in T & H by nearly 1500), supposedly enabling him "to answer with some certainty many basic questions about the nature and character of late medieval doctors and medical practice" (p. 8). The names, one hastens to add, are not listed, nor is the reader given a very good idea of their sources, although the "nature" of this collection is said to be discussed in an article by Gottfried published in this journal.[8] That article, in turn, simply assures the reader of the thoroughness of the author's massive survey: "I have read through, I believe, all the available, appropriate manuscripts and records, in manuscript or printed form."[9] We are invited to see the article's appendix for more information. That appendix begins with the lament that the manuscript and printed sources for the data bank "would require as much space as the entire article," and are only "paraphrased."[10] This "paraphrase" occupies scarcely more than a page, and contains fifteen unhelpful entries, such as "Virtually all the important manuscripts have been translated or at least transcribed. A good source is the Early English Text Society."[11] Manuscripts of what? Even a single example would help. The Public Record Office, it is revealed, contains "a smattering of useful records,"[12] including the nonexistent "Exchequer Rolls" (this class appears again in *Doctors and Medicine*, p. 137). In short, Gottfried gives the reader almost no guidance as to how the "data bank" was assembled.

---

[6] Beck, *Cutting Edge*, p. 64.

[7] *Ibid.*, p. 147.

[8] "English medical practitioners, 1340–1530," *Bull. Hist. Med.*, 1984, *58*: 164–82. Gottfried makes mention in his book of his "articles" in the *Bulletin* (pp. xiii and 249, n. 22), but, in fact, there is only the one

On the other hand, a look at the footnotes and bibliography of *Doctors and Medicine* makes it seem that Gottfried has surveyed hundreds of primary sources, not only medical and surgical manuscripts, but also parliamentary documents, calendars, household accounts, wills, letterbooks, charters, exchequer accounts, registers, statutes, diaries, correspondence, inventories, poems, songs, and commonplace books, to name some. What is more, he pulls a number of charts and tables from his "doctors' data bank." But this impressive facade crumbles wherever it is prodded. For instance, on p. 259, the reader is presented with a table called "Hospitals with Affiliated Practitioners." Twenty-seven "hospitals" are named, including one in Rome. It is not clear how we are to construe this information. The hospitals are not all English, and their affiliated practitioners are not named; nor are we told what constituted a "hospital." Moreover, what is the reader to make of the enigmatic hospitals of "Pammatone, Geona," or "St. Thomas, Acon"? T & H's index provides the answer. In that index, we find all but one (St. Nicholas, Bury) of the twenty-seven institutions listed, including "Holy Trinity and St. Thomas, Rome," as well as Pammatone, in *Genoa* (to which Dr. John Baptist Boerio left money, as stated in T & H, p. 119—is that the "affiliation" Gottfried had in mind?), and St. Thomas Acon (Cheapside, London), where Dr. William Goldwyn is buried (T & H, p. 396)—another "affiliation"?

Another table reveals a similar pattern. On pp. 14–15 is a list of "Physicians at Oxford and Cambridge." In discussing this table, Gottfried says that from Merton "I have records of just twenty physicians" (p. 13), and further, "I have identified just nine New College men" (p. 16). Now, we must remember how he referred us to his *Bulletin* article for the "nature" of his database. In the appendix to that article, he states "Oxford and Cambridge universities have good records. I began with the biographical registers by Emden and the Venns."[13] In his table of 117 Oxford and Cambridge physicians, however, the author has added not one single name to T & H. What is more, he reproduces T & H's errors, errors that would have been remedied by the use of Emden.[14] For instance, T & H/Gottfried "Thomas Gamme" is correctly "John Game."[15] Gottfried does, however, add errors of his own. His Geoffrey Fromand is correctly Godfrey Fromond, William Bari is William Brai, William Leinster is Walter Leinster, John Frye is John Fayre, and Roger Oudbey is Richard Oudeby. The author also reproduces T & H's omissions For instance, Gottfried chastises Charles Talbot, who in his *Medicine in Medieval England*[16] refers to an Oxford physician without naming him (Gottfried, p 12, n. 9) This crisis forces the author to look "in T & H and the data bank," which fail to yield up the name in question A glance at Emden's register would have solved the problem· the mysterious figure is Dr. Bernard Forstove, absent both from T & H and Gottfried, but not from Emden.[17]

---

[9] *Ibid.*, p. 168.

[10] *Ibid.*, p. 181.

[11] *Ibid.*, p. 182, no. 3.

[12] *Ibid.*, p. 182, no. 14.

[13] *Ibid.*, p. 182, no. 7.

[14] A. B. Emden, *A Biographical Register of the University of Oxford to A.D. 1500*, 3 vols. (Oxford: Clarendon Press, 1957–59).

[15] *Ibid.*, 2: 741.

So far, this review has looked at the social and institutional aspects of Gottfried's argument and has examined the prosopographical evidence he gives for it. Much of *Doctors and Medicine,* however, is devoted to medieval medicine's intellectual milieu, for which the author offers evidence from medical and literary sources.

Much of Gottfried's argument rests on the "disdain" that rich, arrogant physicians had for the upwardly-mobile surgeons—how time after time they subjected surgeons to their "gratuitous attacks." For example, he finds in the following snippet how "physicians lambasted the very nature of surgical practice"· " 'Here begins a treatise of all manner of infirmities of a man's body, both within, as touching physic, and without, as touching surgery' " (p. 62). This passage (and the one following it) are nothing more than straightforward statements of the proper duties of physicians and surgeons, duties that were as familiar to the Hunters as they were to medieval writers. There are no "gratuitous attacks and patronizing attitudes" here at all

Also, he claims that after (and presumably because of) the Black Death, surgeons appropriated unto themselves both the prestige and the "universality" of their discredited rivals, the physicians A "compelling" example of how "increasingly, they [the surgeons] won a measure of respect from their peers and their patients" comes from what Gottfried says is a late fifteenth-century manuscript (Oxford, Ashmole MS 1498, folios 57–62), which advocates that, in the field of practice at least, "a skilled practitioner must be the master of all theories and techniques" (p. 71). But the text the author cites (although he makes no mention of this), is a Middle English translation of Johannitius's *Isagoge,* from the earliest times a mainstay of the Oxford and Cambridge medical curricula (a fact to which Gottfried himself alludes on p 171) How the writings of a ninth-century Baghdad physician (commenting on Galen) can provide a compelling example of changing English surgery six hundred years later is beyond most to know. It would seem more likely that learned surgeons were taking an interest in physic

And what about this physic? Gottfried attacks it as "dull"—so dull, in fact, that it drove "the best, brightest, and most ambitious students" to study theology (pp 169–70). It was a "clinical failure" (p 170), lacking in "proper ideas of physiology" (p. 171), "more boring than the natural sciences" (p 11), mired in "gobbledygook" (p 56), beset by "nonsensical treatises" (p. 7), and, finally, in a "sorry state" (p. 173). Granted, the kind of learned advice physicians were taught to give in medieval English universities bears little resemblance to the teaching at large American medical schools, but the constant complaints of grisly abuses by London surgeons throughout the late Middle Ages hardly makes them seem angels of mercy by comparison.[18] Still, we are told that surgeons "enjoyed a good public image" (p. 71), and the problems of municipalities in regulating surgical abuses do not figure into Gottfried's argument.

---

[16] (London Oldbourne, 1967)

[17] Emden, *Biographical Register,* 2 711

[18] An account of London's problems in controlling its surgeons, who ranged from being highly literate to

Some readers might ask concerning the alleged war between physicians and surgeons: how do we explain affirmations of unity made by English physicians before the Black Death? A particularly famous one came from John of Gaddesden, an Oxford physician probably swept away by plague, whose popular therapeutic compendium, *Rosa medicinae,* was intended explicitly "for physicians and surgeons."[19] If indeed it were true that "the ideas of English surgeons rather than those of physicians spread to Europe" (p. 244), a judgment that cries out for examples, why were Gaddesden's *Rosa* and Gilbertus Anglicus's *Compendium,* both compendia of physic, printed so early on the Continent?[20] What English surgeon does the author propose to compare to the popularity of such physicians? In spite of its "falseness" (by modern standards), then, people stubbornly maintained an interest in physic and learned physicians, whose numbers and influence in England and especially at court and university only grew after the Black Death. Did the patrons of physicians expect to be cured of the plague, as today's patients would, or did they instead judge physic by other, medieval standards?

We are also told that the medical curriculum at Oxford and Cambridge excited contempt, not only in the English, but also in the warred-on French. One Thomas Brown in 1396 decided to transfer his six-and-a-half years of medical study at Oxford to the University of Paris. But "after deliberation the Parisians decided that Brown was not skilled enough even to gain first-year admission" (p. 13, the incident is recounted again on p. 173). A shocking condemnation, were it true. But it is not In T & H (p 336), we find that Brown failed to gain admission not because of the low quality of his Oxford education, but because his "transcript" from the medical faculty at Oxford never arrived.

The literary evidence Gottfried marshals for his case fares even worse. The author's discovery of an article in this journal by Ida B. Jones[21] leads to a flurry of citations from its large collection of medieval bits and pieces on medicine Sometimes he names the article as his source; sometimes he does not (for example, p 2, and p 60, n 45· Jones, p. 414) However, Jones does not translate the quotations into modern English, so that Gottfried is forced back onto his own resources, to his apparent confusion. A case in point appears on page 59 We are being told how criticisms of physicians by lay audiences before the onset of the plague "paled besides [*sic*] those that came after the Black Death" (p. 58). Then, the author reveals that "In *The Testament of Cressida,* Chaucer himself was more critical. 'Doctor in physic, clad in scarlet gown/ And furred well, as sic and ought to be/ Honest and good, and not would any world would care he ' "[22] The first thing most readers will notice is that the quotation makes very little sense The second is that, making little sense, it is hardly critical of anyone. More learned readers will point out that not Chaucer but Henryson (who was born in Scotland about thirty years after Chaucer's

---

totally illiterate, and whose skills ranged equally as widely, is found in Carole Rawcliffe, "Medicine and medical practice in later medieval London," *Guildhall Studies in London History,* 1981, *5* 13–25

[19] Gaddesden, *Rosa medicinae,* 1492, f 1

[20] *Rosa,* 1492, *Compendium,* 1510 See M A. Shaaber, *Checklist of Works of British Authors Printed Abroad, in Languages other than English, to 1641* (New York Bibliographical Society of America, 1975), nos 194 (p 106) and 311 (p 83)

[21] Ida B Jones, "Popular medical knowledge in fourteenth-century English literature," *Bull Hist Med,* 1937, *5.* 405–51, 538–88

[22] The mid-Scots text is in *ibid*, p 413

death) wrote the *Testament of Cresseid*, and that his mid-Scots resembles Chaucer's Middle English as much as Burns's language does Milton's. And Henryson is not critical of physicians. That last clause, translated correctly, reads: "and not one word could he lie." The citation following, "more critical still," that "while men go after a leech, the body is buried" (p. 59) means only that there were not enough leeches to go around when needed.

Given this difficulty with medieval language,[23] it is scarcely surprising that Gottfried uses translations made by others whenever he can. For instance, Vern Bullough's translation of John Arderne appears on pp. 60–61. But he forgets to credit Bullough (*Development of Medicine as a Profession*, p. 98, Gottfried copies Bullough's error in citing the page of Arderne: both put the citation to Power's edition as p. 5, but correctly it is pp. 5–6). Perhaps Bullough would also like credit for two other Arderne translations (Gottfried, p. 275, n. 98, and pp. 275–76, n. 100: Bullough, p. 96) or for his translation of Guy de Chauliac (Gottfried, p. 275, n. 97: Bullough, pp. 93–94).

The credibility of Gottfried's book is further diminished by mistakes that should have been caught in copy editing. The same reference is given three times in one footnote (p. 125, n. 281). Linda Voigts's name is spelled three different ways: correctly (p. 174, n. 28), "Voights" (p. 343), and "Voigt" (p. 188, n. 102), Carole Rawcliffe becomes Caroline Rawcliffe (p. 340), and Margaret Ogden is everywhere "Ogdan." "Bartholomei" appears as "Bartholomi" (p. 323), "Bratolomi" (p. 323), and "Bartholome" (p. 347). French diacritical marks are often ignored (e.g., p. 173, n. 22). Citing a three-volume translation of Hippocrates with no page or volume specified is not a suitable documentation of Hippocrates' statement that surgery avoided the "soft parts" (p. 207, n. 2). Nor is a string of eight *"Ibids."* without page numbers generally acceptable in scholarly circles (pp. 299–300, nn. 123–31). Other problems might have been caught before the book was published. John Arderne did not write in English (p. 230). The statement that surgeons knew "algebra" means that they knew how to set bones, not that they were familiar with higher mathematics (p. 239). French surgeon Guy de Chauliac makes a poor example of "cliquish physicians of late medieval England" (p. 201), while the "famous Apocalypse manuscript," Wellcome 49, of German origin, hardly illustrates English materia medica (p. 186). John Mirfield "wrote early in the fourteenth century" (p. 69), but "died in 1407" (p. 221). and these are only a few of the most obvious errors.

The four heavily interrelated books Gottfried has produced since 1978 have given him a reputation in the field of medical history that makes his work impossible to dismiss lightly. A large part of scholarship must be built on trust, and trust in Gottfried and in the reputation of Princeton University Press has already sold a number of copies of *Doctors and Medicine in Medieval England, 1340–1530*. No doubt this will continue. But the kind of misuse of readers' trust this book represents must be viewed with the utmost seriousness. No chapter, practically no page, is free from errors of fact; interpretation, and documentation. The book can be recommended to no one. Instead, sources printed before and widely available in modern English are both far more accurate and far more plausible (despite their limitations) than Gottfried's new book.

---

[23] Other mistranslated quotations appear on p. 61 (Jones, "Popular medical knowledge," p. 416) "It must be a criect ", p. 62 (Ashmole catalogue, col. 1205) "For to ", p. 88 (Jones, p. 421) "Both hi this conne ", p. 89 (Jones, p. 421). "Though in ", and p. 90 (Jones, p. 423) "For that "

DEFINING AMERICAN BIOLOGY: NEW BOOKS IN THE HISTORY OF AMERICAN SCIENCE

SHARON KINGSLAND

JANE MAIENSCHEIN (ed.). ***Defining Biology: Lectures from the 1890s.*** Cambridge, Mass., and London. Harvard University Press, 1986. xiii + 337 pp Ill $25.00.

PHILIP J PAULY ***Controlling Life. Jacques Loeb and the Engineering Ideal in Biology*** Oxford and New York Oxford University Press, 1987 252 pp. Ill $24 95

WILLIAM B PROVINE ***Sewall Wright and Evolutionary Biology.*** Chicago and London. University of Chicago Press, 1986. xvi + 545 pp. Ill. $30.00

JAN SAPP. ***Beyond the Gene: Cytoplasmic Inheritance and the Struggle for Authority in Genetics.*** Oxford and New York. Oxford University Press, 1987. 266 pp $35.00

SEWALL WRIGHT ***Evolution: Selected Papers.*** Edited by WILLIAM B PROVINE Chicago and London: University of Chicago Press, 1986 xiii + 649 pp Ill $70 00 (cloth), $25.00 (paperbound).

Historians of biology have recently begun to pay greater attention to the history of twentieth-century American biology They have focused especially on establishing the growth of an American style of research and on the relation between science and philanthrophy. Lately they have started to explore marginal fields hitherto ignored in the literature, and to attempt comparative studies of American and European science Historians of medicine will be interested in recent scholarship pertaining to those branches of biology where medical research is important: physiology, embryology, and genetics The books under review here represent a substantial addition to the history of modern American science, though the American scene is constantly set against the European scientific context. Even where medicine is not explicitly discussed, many of the themes that emerge are relevant to the history of modern medical science

Philip Pauly's biography of Jacques Loeb is an attempt to trace one root of the "engineering standpoint" that permeates modern science He asserts that understanding the implications of this approach in today's science requires an understanding of its history. His discussion raises the theme of the conflict between a historical or evolutionary world view and an ahistorical or engineering standpoint in biology. This theme is absolutely central to modern biology It underlies the division between naturalists and experimentalists observed by other historians to be developing at the turn of the century. It raises many issues concerning the relation of biology to the physical sciences and the place of historical reasoning in modern science these are all well worth exploring in greater depth. Jane Maienschein's volume of essays serves as a useful complement to Pauly's study.

William Provine's and Jan Sapp's books both deal with the history of genetics, though from strikingly different perspectives A running theme of Provine's book is the utility of theoretical work in evolutionary biology. Though his discussion is not directly addressed to the history of medicine, he raises general issues about the relationship between theory and experiment that are important in any field of science. Provine and Sapp are concerned with the function of controversy and competition in science, an issue of importance in modern Nobel Prize-dominated medical research as well Their approaches are very different, with Provine arguing for the creative role of controversy in science, as a stimulus to experiment, while Sapp sees the growth of scientific fields as a product of competition and conflict, with the object being to eliminate or relegate to the margins any competing paradigms Sapp's book is influenced by the recent literature in sociology of science which has begun to penetrate the historical literature and which will be of interest to historians writing about the growth of medical research specialties, though the applications of sociological models are still controversial.

If there is a common lesson to be learned from the books of Pauly, Maienschein, Provine, and Sapp, it is that attempts to deal adequately with biological complexity, either by adopting a holistic perspective or by incorporating the idea of randomness or historical contingency into one's theories, are bound to be eclipsed, at least initially, by deterministic or reductionist approaches which promise clear-cut and rapid answers, and which offer practical applications But there has been a long tradition in biology of resistance to simplistic, one-sided explanations. The challenges mounted by those outside the mainstream have not only stimulated a great deal of experimental work, but have forced revisions in many reductionist models It is therefore necessary, if we want to understand how science works, to take into account the marginal or unorthodox areas of research even while writing about the "winning" side. These lessons apply equally to the history of medicine as to the history of biology.

Controlling Life, Philip Pauly's new biography of Jacques Loeb, is an interesting study of a scientist who hoped to escape the restrictive medical context of German biology by moving into the freer American environment In tracing Loeb's career Pauly also has to show how American biology was defining itself at the turn of the century and how Loeb found his niche in the new discipline. He makes the important point that American biology differed from German biology in that it developed in the 1890s apart from a medical context. The Marine Biological Laboratory at Woods Hole, founded by Charles Otis Whitman, was a prime example of this style of non-medical biological research. In Germany Loeb could only have made his career in physiology within medicine, but his orientation was unsuited to this context. In America he was able to find his place within the new experimental general biology being created by Whitman and others.

There were, however, sharp differences that soon emerged between Loeb and his American colleagues. In particular Loeb found distasteful the American tendency to interpret biology, psychology, and sociology in the framework of progressive evolutionism, which to Loeb carried overtones of *Naturphilosophie* and of religion. Loeb himself adhered to a stridently ahistorical way of thought Science for him meant explanation in terms of proximate causes, with biological events explained on the level of physics and chemistry. Solving the problem of evolution meant not speculating about the unknowable past, but seeing whether species could be transformed, or life itself created, in the laboratory. For Whitman, in contrast, biology meant experimental natural history; before long Loeb's reductionist point of view in biology came to seem both incomplete and absurd Pauly characterizes Loeb's profoundly ahistorical perspective as an "engineering standpoint," which Loeb consciously developed in his early career in Germany

Pauly traces the roots of Loeb's engineering standpoint to his contact with botanist Julius Sachs, who got Loeb interested in the study of tropisms as a way of gaining control over animal behavior. In striving to justify his interest in the science of control, Loeb turned to the positivist philosophy of Ernst Mach, who argued that science should not try to uncover the underlying "nature" of things, which led to idle speculation about invisible entities like atoms, but should be judged by its success at prediction and control of events. Loeb was also influenced by Josef Popper-Lynkeus, an Austrian engineer who saw technology as an expression of the human spirit, an activity that had its own aesthetic rewards apart from any utilitarian value Developing these ideas, Loeb came to see the attainment of control over life as the highest expression of scientific creativity His scientific model was not Darwin, but Pasteur

Loeb's engineering standpoint led to his experiments on artificial parthenogenesis, which gained him both prestige and notoriety Moving to Berkeley from Chicago in 1903, his interest in reproduction, growth, and senescence became the basis for an active research program and attracted visitors such as de Vries, Ostwald, Arrhenius, and Rutherford Pauly's account shows that one of Loeb's virtues was his ability to see problems in very simple terms Not to be overwhelmed by biological complexity and disdainful of historical reasoning, he made it appear that fundamental biological laws could be discovered, which would in turn open exciting new fields of research in physico-chemical biology The traditional biological perspective, expressed by H S Jennings, who engaged Loeb in a debate over animal behavior during these years, simply did not make sense to Loeb the engineer. Thus, even as Loeb's prestige grew, he was always in conflict with a part of the biological community. He was also unappreciated by many physiologists who found that his ideas served no obvious medical purpose Ironically, the proponent of the engineering standpoint was involved in research that was too "pure" to be perceived as important by much of the medical community.

An exception was Simon Flexner, who brought Loeb to the Rockefeller Institute in New York in 1910. Pauly argues that from 1910 to 1918 Loeb's outlook underwent a basic transition. Given complete freedom to do what he liked, Loeb gradually abandoned his engineering standpoint and concentrated on developing a mechanistic view of science. He repudiated Mach's positivism and began to see the function of science as a search for the ultimate explanation of visible processes by imagining mechanical processes on a more microscopic level It was a program of which Descartes would have approved At the same time, Loeb's experiences of anti-Semitism and his shock at the outbreak of the war prompted him to attack romantic evolutionism more forcefully than he had before Thus was created the advocate of mechanistic materialism which has become the standard picture of Loeb painted by historians as well as by Loeb's contemporaries. How radical a shift this represented is problematic, for as Pauly admits, all of the elements of the later Loeb were present in the younger man Pauly argues that the consequence of this shift was that Loeb dropped biological research altogether, to concentrate on more basic problems of protein chemistry.

The final chapter assesses Loeb's influence, starting with a discussion of the use of him as a symbol by Flexner, who saw him as the ideal "pure" scientist, and by Paul de Kruif, who depicted him as working against the constraints of institutions and "big" science Assessing Loeb's impact on research is difficult because he created no well-defined school. One expects to find some more discussion of the research group at Berkeley, however, or of Loeb's more subtle influence on such contemporaries as T. H. Morgan, who despite their disagreements much admired Loeb

Instead, Pauly has chosen five scientists who, though not disciples of Loeb, admitted to being influenced by his ideas. All of these—J. B. Watson, H J Muller, W. J Crozier, B. F. Skinner, and Gregory Pincus—absorbed Loeb's engineering standpoint and his reductionist methods. In brief biographical sketches Pauly shows how each made the engineering goal the focus of his research.

Though these choices of "Loebians" are interesting, the question remains as to what degree we can attribute the engineering mentality that pervades our age to Loeb's influence, as opposed to the larger technological and institutional changes that since the First World War have created modern science. The engineering approach that has been so successful in our culture certainly transcends the influence of one man and directs us to study further the changing relations between science and industry, and the relations of the physical sciences to biology. This biography should make us think not only about the similarities between Loeb's perspective and our own, but about the great differences in the context and outcome of the engineering standpoint in Loeb's generation and ours

A good companion to Pauly's biography is the volume edited by Jane Maienschein, *Defining Biology,* which reprints ten essays of the eighty-eight published in the 1890s from the Marine Biological Laboratory at Woods Hole The authors are all familiar names to historians, with the possible exception of Cornelia Clapp, the only woman, whose career as a research biologist would make an interesting study. Maienschein provides a good introduction recounting the early history of the laboratory under C. O. Whitman and summarizing the lectures printed here as well as others not included in this volume.

Seven of the papers are mainly on embryological themes Several chart American reactions to German theories, especially those of Wilhelm Roux, August Weismann, and Hans Driesch As Maienschein points out, the question of whether the embryo developed according to "preformationist" or "epigenetic" doctrines was greatly complicated by the recognition that heredity and development were related problems. A satisfactory explanation had to encompass both fields. E. B. Wilson's opening essay illustrates the willingness of American embryologists to acknowledge this complexity and find a compromise between the two opposing viewpoints.

German views are represented in papers by Roux and Jacques Loeb Roux's lecture is a philosophical manifesto calling for a new discipline of "developmental mechanics," which was defined not by subject, but method It was the causal analysis of biological phenomena by experimental methods. Roux believed that developmental mechanics would contribute broadly to the established fields of zoology, anatomy, embryology, physiology, and pathology, thereby uniting those branches of biology which were also the foundations of medical science Loeb's essay discusses his chemical experiments on fertilization, concluding that the value of this research was that it transferred the problem of fertilization from the field of morphology to physical chemistry.

In general, American reaction to German theory was undogmatic, with frequent appeals to get more facts and only hesitant speculation. American embryology seems to have followed the same pattern observed by historians of the physical sciences: it was empirical, often focused on narrow problems, with little creative theorizing The theorizing was left to the Europeans. The reason for the prevalence of this empirical style, which surfaces in several branches of science at the turn of the century, needs closer scrutiny in the history of biology

Overall in these discussions of biology's direction there was no real consensus about where biological inquiry should draw its limits. For T. H Morgan, biology appeared to entail a narrowing interest in physiological and chemical problems. His essay on regeneration repudiated speculative, historical thinking in favor of the study of proximate causation, a style of research similar to Loeb's. For others, notably Whitman, biology was a broad discipline that embraced problems normally in the domain of philosophy and religion, including evolution, the origin of consciousness, and the biological basis of free will. Reading these essays in the light of Pauly's biography of Loeb, we can understand better the different methods and philosophies that animated American and European science in the early century.

Sewall Wright and Evolutionary Biology focuses on the scientific research of a man whom William Provine believes will be seen by future generations as the most important evolutionary theorist of the twentieth century. Because Wright's mathematical work is notoriously difficult and has been misunderstood by most people, this biography is in part meant to set out his theory in a logical style, reveal its ambiguities, and thereby help modern students of genetics to appreciate Wright's thought

The first three chapters provide background on Wright's family and his education. Provine shows how Wright's research was shaped through contact with geneticists at the Bussey Institution at Harvard, especially W E. Castle and E. M East The next two chapters deal with Wright's work as an agricultural geneticist from 1915 to 1925, a time when most breeders dismissed theoretical genetics and quantitative theories of breeding Ironically, Wright would have greater immediate impact on animal breeding theory than on general evolutionary biology, as breeding theorists read and used his ideas widely. Wright was in turn influenced by his research on domestic populations.

Of special interest to historians of medicine will be the chapter covering Wright's years at the University of Chicago, which focuses on his work in the physiological genetics of guinea pigs This research was intended to reveal the basic connections between embryology and genetics, two fields which had been artificially separated since the early twentieth century with the rise of Mendelian genetics. Provine points out that Wright's work did not achieve this synthesis Progress in physiological genetics had to wait for the biochemical studies of lower organisms conducted in the 1940s Nevertheless, Provine reminds us that we should not neglect the work by Wright and others that anticipated these developments in molecular biology. He also argues that the only way to understand Wright's theory of evolution and his relations to other evolutionists is in the context of his work in physiological genetics

The second half of the book is devoted to Wright's theory of evolution in nature. Provine sets the stage with a sketch of the problem of adaptation in relation to mechanisms of evolution from Darwin to the mid-1920s He gives an excellent synopsis of the views of Darwin, Wagner, Wallace, Romanes, and Gulick, among others, showing the developing tension between those maintaining a strong selectionist and adaptationist position, and those advocating non-adaptive mechanisms of evolution.

This discussion leads to an analysis of the intense controversy between Wright and R.A. Fisher, which lasted from 1929 until Fisher's death in 1962. Fisher saw evolution by natural selection as a process as deterministic as the gas laws of physics, whereas Wright saw evolution as a combined action of natural selection and random genetic drift. The precise interpretation of random drift and whether it could cause non-adaptive changes in populations became the subject of much debate. Wright's theory was widely misunderstood to mean that he advocated random drift as an alternative to natural selection, whereas he perceived random drift as a means of creating new interaction systems of genes, upon which selection then acted

Provine carefully traces how this misunderstanding came about and concludes that inconsistencies and ambiguities in Wright's own papers were partly responsible. In unravelling the lengthy debates over adaptation and selection, Provine also corroborates Stephen J. Gould's suggestion that as the Modern Synthesis developed, views became hardened to emphasize more selection and less random drift Even Wright's own evolving position, Provine maintains, reflected this shift in emphasis. The reality of this "hardening" is now well established, what we need is further research to determine why this overall shift occurred and why random processes have now begun to receive more attention

Theoretical population geneticists have been much criticized for their simplistic approach to biology and the question has been asked whether such mathematical theory is at all appropriate to the complex situations we find in nature. Provine's answer to this challenge is a vigorous affirmation of the value of theory He demonstrates this with a blow-by-blow analysis of the collaboration between Wright and Theodosius Dobzhansky, an experimental geneticist. Provine points out that the data Dobzhansky collected on the genetics of natural populations took on greater meaning by being interpreted in Wright's theoretical context. Conversely, Wright's abstract theory benefited from the data that Dobzhansky provided All of this research, as well as the field work that E B. Ford did in collaboration with Fisher, was inconceivable without the theoretical foundation, Provine argues.

In addition, Provine suggests that the controversy between Fisher and Wright, though unresolved at Fisher's death, has been a central creative factor in the development of evolutionary biology from the 1930s to the present. He demonstrates this creative force with an analysis of two more recent controversies on polymorphic species, showing that an enormous amount of experimental work was generated by the tension between Fisher and Wright. These debates also crystallized the differences between Fisher's and Wright's ways of thinking about evolution and forced Wright to clarify his ideas on polymorphisms

Provine's study shows how protracted controversies in evolutionary biology can be, extending over two generations in this case, yet how invigorating they can be for scientific research, even when it appears that the opposite sides are irreconcilable. In this light we can appreciate Ernst Mayr's assertion that scientists (and also historians) should at times state their views in a slightly exaggerated form to heighten differences and stimulate debate Thus Provine's study shows the value of a scientific style of confrontation which might appear counterproductive to the layman.

Provine's account of Wright's work essentially ends in the 1950s, though a final chapter briefly discusses his later work through to the publication of his major treatise *Evolution and the Genetics of Populations.* Indeed, Provine sees his book as background for those who wish to understand this treatise. In reading the biography, it would also be useful to have on hand Wright's *Evolution. Selected Papers,* which reprints forty-two of Wright's articles on evolutionary biology These are accompanied by brief introductions by Provine that summarize the arguments and relate each paper to Wright's work as a whole Though Provine's biography provides a fairly detailed step-by-step analysis of Wright's ideas, the issues are complex enough that it is valuable to have the original papers for reference.

Jan Sapp's book also deals with genetics, but as seen from the outsider's perspective; he brings to our attention a large body of literature on cytoplasmic inheritance in the twentieth century. Cytoplasmic or non-Mendelian inheritance involves the hereditary materials located outside the nucleus of the cell, in contrast to Mendelian inheritance which stresses the role of genes in the chromosomes of the nucleus Because the importance of cytoplasmic genes has been recognized only in the past three decades, the standard histories of genetics have made little or no mention of this field, which has existed precariously poised on the margins of mainstream genetics since the 1910s Sapp seeks to redress the balance by telling the history of genetics from the point of view of these outsiders. But his story deals with a theme touched on by the other books, namely the changing relationship between embryologists and geneticists in the twentieth century

He begins with a survey of turn-of-the-century scientists, mainly embryologists, who adhered to the traditional view that heredity and development were inseparable fields Looking at the work of C O Whitman, F.R. Lillie, E G Conklin, Theodor Boveri, and Jacques Loeb, he shows the diversity of arguments for the hereditary role of the cytoplasm The basic argument was that although Mendelian genes might explain individual differences and species characteristics, the more fundamental characters of the organism, those it shared with other taxonomic groups, were accounted for by the cytoplasm through its control of development By the 1910s it was clear that both sides were arguing from different premises, because geneticists had effectively divorced heredity from development, a move that allowed them to redefine heredity to mean only the transmission of characters controlled by nuclear genes. Embryologists and later researchers in cytoplasmic heredity resisted what they saw as an arbitrary separation of development and heredity.

The second chapter looks at the ways American geneticists achieved dominance over embryologists and naturalists in the field of heredity with such common techniques of discipline-building as the creation of new journals and societies, and by using a new terminology to express their perspective Sapp stresses the considerable opposition that genetics aroused within rival fields and points out that the growth of genetics was largely a result of its ability to generate reproducible results quickly, in effect swamping the other fields by a kind of natural selection process

The main point of this brief survey is to demonstrate that the way genetics developed in America was by no means inevitable Quite different patterns were seen in France and Germany. Sapp argues that the rigid institutional structure of the German university made it more difficult to create a new genetics discipline there The result was that the field of heredity retained its broad, traditional perspective and the role of the cytoplasm continued to be a central part of the debate. No consensus emerged on this difficult problem, however, there were as many different views entertained as there were professors.

Sapp gives a survey of the principal ideas and experiments in Germany, including a discussion of two emigrés to America in the 1930s, Victor Jollos and Richard Goldschmidt Goldschmidt's career and unorthodox ideas have been discussed by historians, but the tragic story of Jollos, who never could adapt to the American scene, is new and fascinating Sapp also discusses why the German studies of cytoplasmic inheritance were not well received outside Germany, arguing that they did not fit into the reductionist framework of nuclear genetics. There were also serious technical problems in cytoplasmic work. Not only were cases of cytoplasmic inheritance rare, but experimental results were often confusing or unintelligible to others.

Sapp's focus shifts back to America with a discussion of the work of the brilliant protozoologist, Tracy Sonneborn, who was a student of H S. Jennings. Following up some of Jollos's ideas, Sonneborn developed the field of cytoplasmic inheritance in the 1940s and was engaged in controversy through the 1950s What Sapp describes has the character of Kuhn's "normal science," though Sapp is not following Kuhn's general model of science: anomalies in the genetic field turned up by Sonneborn and others were consistently resolved in terms of the Mendelian nuclear "paradigm" by mainstream geneticists. There would be no cytoplasmic "revolution" in America

Sonneborn's work was more appreciated by Boris Ephrussi in France. Here, as in Germany, a separate discipline of Mendelian genetics had not developed by the 1940s Sapp argues that the rigidly hierarchical structure of the university system, under strong state control, tended to foster continuity in thought and conformity to established views. Moreover, France was a bastion of neo-Lamarckian thought, which recognized no separation between soma and germ plasm Both of these conditions favored the growth of research on cytoplasmic inheritance. Sapp reviews the research of Ephrussi, Philippe L'Héritier, and André Lwoff in particular, arguing that the French research on the cytoplasm was mounted as a deliberate challenge to American nuclear genetics, especially that represented by George Beadle and his group at Caltech in the 1950s.

The reception of work on the cytoplasm was complicated by the rise of Lysenko in the 1940s. Because cytoplasmic inheritance was thought by some to provide a mechanism for Lamarckian evolution, it was also seen as potential support for Lysenko's ideas Sonneborn's work was singled out as being in favor of Lysenko, forcing Sonneborn to refute these accusations by asserting his adherence to the principles of classical genetics. In France, Lysenkoism was picked up by neo-Lamarckians and Communists Sapp shows how the Lysenko issue and the complex politics of French science affected Ephrussi and other geneticists.

The story closes with a survey of work on cytoplasmic inheritance after the DNA revolution in the 1950s. The traditional cytoplasm-nucleus dichotomy was questioned in the late 1950s by a former student of Sonneborn's, David Nanney, who challenged the experimental basis for establishing the existence of cytoplasmic genes Nanney was trying to redefine the concept of heredity, seeing it as a kind of homeostasis which gave the living material the capacity to maintain its individuality during proliferation Sapp discusses the reactions to Nanney's controversial ideas and the growth of chloroplast and mitochondrial genetics through to the 1970s The central problem of cytoplasmic research—to explain cellular organization and development—continued to be resistant to biophysical and biochemical approaches and the field was overshadowed by the main lines of research in molecular biology.

Sapp's approach differs from Provine's in being explicitly sociological, an adaptation of Pierre Bourdieu's theory of the scientific field His image of genetics is that of a discipline created through a system of conflict and competition Scientists are seen to be engaged in various "strategies" or "tactics" designed to gain "authority" in their field Commitment to one side or another in a controversy therefore partly reflects the potential rewards of success peer recognition, prestige, and money There are problems with the sociological model and Sapp himself admits that it is hard to decide whether knowledge claims are accepted because those who hold them have an interest in truth, or whether they uphold the truth which suits their interest

The sociological model implies a relativist view of science which many scientists and historians would resist, even while admitting that politics does enter into science. Sapp's goal here is not to test the model, rather he assumes its validity and invokes it when he finds evidence of conflict or discipline-building In fact, the sociological perspective is not totally integrated into his story; it is used often to begin or conclude what is really a straightforward survey of the literature A real test of the model can only be made with a more detailed analysis of the formation of the genetics discipline in America and Europe, with close attention to the interactions between scientists and between institutions.

Sapp's intention clearly is not to trace the inner dynamics of the genetics discipline, an enormous task, but simply to indicate the main areas of conflict between fields, from the perspective of the cytoplasmic researchers. Indeed, a social and disciplinary history of even mainstream genetics remains to be written. Such a history would reveal a far more complex story than Sapp has indicated, but no one will be able to write this history without taking into account the material in Sapp's book

These books, in their different ways, deal with people who built successful careers while challenging the orthodox views in their respective fields Only Loeb's "engineering standpoint" eventually became the new orthodoxy, for the spirit of modern science favored reductionism. Yet those who challenged the reductionist approach also contributed to the direction and definition of American biology, even if they did not succeed in "revolutionizing" their fields. In writing about these challenges, these histories also draw attention to the gaps in our knowledge of mainstream biology. The authors touch repeatedly on the relationship between genetics and embryology, for instance, yet there is no history of modern embryology to complement existing histories of genetics Nor do we have a history of physiological genetics, or even a full study of general physiology in America Finally, comparative studies of fields in different countries are needed to allow us to assess, in a way that is not culture-bound, the institutional and social factors that shape scientific fields.

BOOK REVIEWS

ETIENNE TRILLAT *Histoire de l'hystérie.* Paris· Seghers, 1986 (Médecine et histoire) 282 pp. Ill. F85,00 (paperbound)

This elegant monograph about a mysterious illness reveals an author who is a good historian, a skilled clinician, well-versed in the international literature of psychiatry and psychoanalysis, and unmistakably French. Trillat writes the history of a Protean illness that has puzzled the ancient Greek clinicians, perplexed semeiologists and defeated nosologists for two thousand years, goaded ecclesiastic witch hunters, and deceived Mesmer's critics and Charcot's admirers until it eventually gave birth to psychoanalysis, only to die shortly thereafter. The reason for this elusiveness is that hysterical impairment can affect every bodily or psychological function from the motion of a finger to perception, learning, or memory, and hysterical symptoms can range from violent episodes resembling epileptic seizures—Charcot's "grand mal"—to impotence, frigidity, and pain, or minor local analgesic or anesthetic loss of sensation

Trillat leads us through 2,500 years of hysteria's history with a firm hand, taking time to dwell on several major themes The first of these is Hippocrates' assertion that there are no sacred diseases, an assertion that implicitly condemns possession by the devil, witch hunting, and the Inquisition's *autos da fé.* We arrive quickly in the Renaissance, having learned that the ancients, particularly Celsus, distinguished hysteria from epilepsy, that the notion of the wandering uterus was widely *dis*credited, and that the ancients wrote good clinical descriptions of hysterical symptoms without understanding their etiology or nature. With Galen "philosophy and medicine diverged" (p. 32), prefiguring the opposition of faith and science in the nineteenth century.

Trillat dwells on hysteria as a women's illness, even though he makes us wonder who was the hysterical person, the witch or the hunter. He shows how the hysterical symptoms of witches, likened to attributes of the devil, stigmatized these women as evil doers who operate at night and wear black, the color of melancholy or depression. Like witches and the devil, hysterical patients are often deceptive and unreliable, and therefore society (including physicians) tends to reject them. Thus, at the Salpêtrière in the 1880s, hysterical women patients were segregated, together with epileptics, on a newly created ward, which is where Charcot discovered hysteria

The place of hysteria in nosology has been disputed between neurologists and psychiatrists ever since physicians such as Weyer and Sydenham reclaimed the illness from the theologians and philosophers. In his third chapter, Trillat explains how modern science raised the physical locus of hysteria from the uterus to the brain, thereby desexualizing the illness. the blood vessels could no longer distribute black humor or choler after Harvey pre-empted them to circulate the blood, the nerves ceased to be hollow conduits for animal spirits after anatomists such as Willis demonstrated them to be solid The consequence of these discoveries was a new theory· fermentation of the humors produced vapors and these rose, like the just-discovered gases to affect the brain, male and female alike Now Sydenham could broaden the definition of hysteria by asserting that men can be hysterics, that is, hypochondriacs. Finally, William Cullen found a prominent place for all mental illnesses in his nosology. he called them illnesses of the nervous system, or neuroses, a term of many meanings in nineteenth-century neurology and psychiatry.

The past two centuries of hysteria's history are well known, and will not be surveyed here, for want of space In the second half of his book, Trillat places emphasis on Mesmer who "backed into the history of hysteria unawares" (p. 79), underlining the importance of "critical sleep" (p 92) after an emotional crisis because the patient is then susceptible to hypnotic suggestion That notion leads to Freud.

Indeed, Charcot and Freud dominate the second half of the book—as they should Trillat traces their evolution from neurology to psychiatry, and Freud's discovery of hysteria and its sexual character during his stay at the Salpêtrière in 1885–86 Freud abandoned hypnosis for free association, established "conversion" of sexual conflict into physical symptoms, discovered infantile sexuality, and the revealing nature of dreams. He distinguished three groups of illnesses hysteria, the phobias and obsessions, and the psychoses Trillat explores the battle between the Salpêtrière school and that of Nancy, the impact of the First World War on a rediscovery of hysteria in men, and then gives detailed attention to the rise of psychoanalysis and of psychosomatic medicine, particularly in the Anglo-Saxon world He concludes that hysteria is dead because psychosomatic medicine now deals with these illnesses, but its mystery remains inaccessible

Freud discovered the meaning of the hysterical symptom: it represents a forbidden sexual desire or action, the defense against it, and impaired functions In the traditional psychosomatic diseases, anatomical lesions usually occur that have no meaning *per se,* they are believed to result from rather specific non-sexual conflicts that generate emotions whose physiological correlates are discharged via autonomic nervous outflow from the brain, hormonal and probably immunological mechanisms This formulation, owed to Franz Alexander, can be traced back to Freud's concept of the actual neuroses. This distinction between hysteria and psychosomatic disease is a critical one.

This learned, lively, and well-written book differs from Ilza Veith's *Hysteria. The History of a Disease* of 1965 because of its strong clinical emphasis and the much larger space devoted to contemporary developments. It deserves translation, but only after adaptation to the Anglo-Saxon scholarly manner. the footnotes are skimpy and there is neither bibliography nor index—a deficiency of French publishing practices that continues to puzzle and irritate American readers. A translator would need to provide guidance to English sources, so that a quotation from Hippocrates, for example, would not refer readers to Littré's *Oeuvres complètes* of 1839–81 As one would expect, the book is heavily weighted toward French sources since the Renaissance which makes it pleasurable reading for Francophiles And Trillat does indeed succeed, as he proposes, to reduce the meaning of hysteria to its essence, "as one would reduce a fine sauce" (pp 9–10). American palates should appreciate the taste.

Reviewed by DORA B WEINER and HERBERT WEINER, School of Medicine, UCLA, Los Angeles, California

LEONARD J. BRUCE-CHWATT and JULIAN DE ZULUETA. ***The Rise and Fall of Malaria in Europe: A Historico-Epidemiological Study.*** Oxford and New York. Oxford University Press, 1981. xvi + 240 pp. Ill. $36.00

There are a few diseases which, by dramatic mortality, massive endemicity or epidemic spread, yet less than cosmopolitan distribution, are perceived in the popular imagination to determine the course of history and the settlement of people. They include plague, typhus and cholera among the epidemics, sleeping sickness in Africa which is both epidemic and endemic, and above all malaria as the great example of what the French so evocatively call *"les grandes endémies."* For the tropical medicine specialist and public health administrator in the Third World, and indeed until recently in the southern United States and Mediterranean basin, malaria has consistently been one of the greatest problems. It may be overshadowed as a cause of mortality by respiratory infections and diarrheal diseases but these are so ubiquitous and endemic that they escaped notice until recently. So for the health worker, malaria is a massive problem, for the historian, its position is much less clear. Whilst W. H. McNeill has come down wholeheartedly on the side of malaria as a determinant of history (*Plagues and Peoples,* 1976), Fernand Braudel and others have been more skeptical (*La Méditerranée et le monde méditerranéen à l'époque de Philippe II,* 1966). The European malaria situation is both the best documented in the world and the one that has gone through the most complete change, in that malaria has been eradicated from Europe. This great public health achievement has owed much to the World Health Organization, and in this book two of that organization's most devoted servants and great malariologists record the eradication of malaria from Europe in a historical context.

The book contains much fascinating material but has an unusual structure and balance, so that the reader needs to "change gear" several times if he or she is to gain the most from the work. It can best be viewed as comprising four parts, in addition to a broad and most useful bibliography. Chapters 2 and 3 give a hypothetical account of the spread of malaria through Europe up to late classical times. Much of this is inevitably speculative, but it is speculation by those best placed to do so. A plausible relation between the evolution of the European mosquito fauna and the increasing documentation of severe malaria as the classical period progressed is set out and explains satisfactorily many of the difficulties that would result from more static assumptions about the spread of malaria. It also provides a beautiful example of interdisciplinary scholarship.

The second and longest part of the book (chaps. 4–14) jumps in time, style, and approach to a review, country by country, of the process of malaria eradication between 1950 and 1970, set against a section of variable length on the post-classical history of malaria in each nation. For the larger countries the background section is often fascinating and always informative and readable. For example, in France the malarial fevers of the Bordeaux area in the sixteenth century are related to ponds for commercial leech-farming, and in the Sologne area to the history of fish-pond construction and dereliction. The subsequent section on each country's eradication program is more of an official catalogue of events linked to an annual table of cases. The light style of the other parts moves towards the standard "WHO language." This section is of less interest to the historian though good to have on record.

The last two chapters deliberately address the role of international organizations in ridding Europe of malaria The League of Nations Malaria Commission and the Rockefeller Foundation dominated the scene between the two world wars, and their role is well discussed, though anyone fascinated by this period will need also to consult L. W. Hackett's great book, *Malaria in Europe* (Oxford, 1937), and Norman Howard-Jones's history of the League of Nations' activities in health (*The Scientific Background of the International Sanitary Conferences, 1851–1938* [Geneva· WHO, 1975]). Once WHO comes on the scene, the authors revert to respectful language, but give a clear and balanced picture.

This is the formal end of the text of the book, but there follow forty-eight pages of photographs of people, situations, and cartoons bearing on the control of malaria in Europe The plates have twelve pages of very full and interesting captions which convey admirably the many aspects of European malaria and form one of the best features of the work

In the world's history, many diseases have entered and played a role Only one has completely gone from the world and that is smallpox, whose eradication is the greatest public health triumph of this century Endemic malaria has been removed from Europe, but not from the world as a whole. The attempt at global malaria eradication occupies a central place in the history of international health in the post-war period, as much or more so by its failures as by its successes But that is another story Within Europe, eradication worked as it was intended to DDT, for all its bad press today, completed the task that engineers and health workers had begun This book covers a completed story, from the introduction to the eradication of malaria in Europe. Together with Hackett's classic work, it provides a quarry for the historian or scientist interested in any aspect of European malaria and signposts to the rest of the literature. As with a quarry, pieces need to be gathered and built into a whole, and the content is invaluable, though the structure of the material less easy. All readers of the *Bulletin* will find much of interest here—and plate 16 must be one of the best examples of combining a caricature of national character with successful health education!

Reviewed by DAVID J. BRADLEY, Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, London, England

DAVID C LINDBERG and RONALD L NUMBERS (eds) *God and Nature: Historical Essays on the Encounter between Christianity and Science.* Berkeley. University of California Press, 1986 xi + 516 pp. Ill $50 00

The eighteen essays presented here, many by eminent historians of science, have as their rationale to display the complexity and diversity of the historical relations between science and Christian culture, thereby correcting popular perceptions of a perennial conflict. As Erwin Hiebert demonstrates in an essay on modern physics, scientific innovations have been a resource for Christian as well as anti-Christian apologists. Moreover, religious beliefs have sometimes provided sanction, even motivation, for certain styles of science, as Charles Webster reasserts in a sensitive reply to critics who discount a Puritan stimulus in seventeenth-century England The complexity of the interaction in the medieval period is revealed by Edward Grant who discusses the role of scientific learning as handmaid to Biblical exegesis and the incursion of quantitative techniques into theological debate. Grant also gives a judicious account of the consequences, for natural philosophy, of 1277 when propositions deemed to compromise the omnipotence of God were officially condemned. Positively, this generated a license to construct anti-Aristotelian hypotheses on such issues as a plurality of worlds Negatively, to emphasize that God could have made the world operate in any number of ways did little to encourage an epistemological realism. Robert Westman's analysis of the reception of Copernicus brings out the diversity of Protestant responses, ranging from Melanchthon's rejection on Biblical grounds to the missionary zeal of Rheticus The theological systems of Bruno, Thomas Digges and Kepler are also shown to be remarkable for their heterogeneity. The fate of Galileo is discussed by William Shea who, whilst explaining how the Counter-Reformation papacy came to take so authoritarian a stand on scientific matters, also hints that the tragic affair reflected Galileo's misperception of the effect which Protestant attacks were having in stiffening attitudes towards Biblical reinterpretation An original essay by William Ashworth introduces broader perspectives on Catholicism and science in the seventeenth century, one of his targets being the partisan view that the rejection of traditional scientific authority was the prerogative of Protestants alone. There are engaging conjectures here to explain the strengths, and putative limitations, of Jesuit natural philosophy. The familiar thesis that a Protestant emphasis on the absolute sovereignty of God could assist the dissemination of a mechanical philosophy (in which matter was entirely passive) is reaffirmed by Gary Deason. Without engaging her critics, Margaret Jacob repeats her contention that a political and economic explanation can be given for the zeal with which "latitudinarian" Anglican clergy popularized a Newtonian universe in which the stability of the natural order mirrored their prescriptions for a stable social order.

Whilst several of the contributors follow the example of David Lindberg in tilting at A. D. White and J W. Draper, there is no conspiracy to conceal the difficulties that science has raised for Christian orthodoxies. In a nicely-crafted discussion of Protestant responses to Darwin, Frederick Gregory insists that "the attempt to reconcile evolution and Christianity depended on a rejection of natural selection" (p. 383). Gregory also recognizes that, for some Christians, evolution promised insight into God's immanence—a reminder that, despite claims for the cognitive neutrality of science, its conclusions have repeatedly been invested with cosmological meanings, reflecting the deepest concerns of its expositors This particular theme is impressively developed by Martin Rudwick who replaces triumphalist images of scientific advance with an alternative historiography of the earth sciences in which the interaction of rival cosmologies is stressed With the development of geology in the nineteenth century, the delineation of more limited goals for scientific enquiry meant that the attribution of cosmological meaning was officially excluded from scientific discourse Christians familiar with an emerging Biblical criticism, however, had no difficulty in adapting to the new geological vistas.

Critics of the collection might object that it provides an overview without an overview. Not that there is any shortage of shifts Tracing the Laplacian transformation of Newtonian celestial mechanics, Roger Hahn emphasizes the "immense intellectual distance" travelled in less than a century: "the transposition from man created in the image of God to a superior intelligence conceived in the image of man is startlingly powerful" (p. 269). Similarly, James Moore documents the demise of the "two books" analogy which, since Francis Bacon, had been a useful device through which to affirm the ultimate, if not always immediately apparent, harmony of science and Scripture. Significant shifts within twentieth-century creationism are identified by Ronald Numbers who explores a paradoxical contrast between the 1920s and the present. The shift from an openly Biblical defense of creationism to one allegedly based on science has been accompanied by a growing intolerance of an old earth and symbolic days of creation. The St Augustine described by Lindberg would not be amused!

But what does it all add up to? The irony is that the one contributor who tackles the deeper issue of the relationship (if any) between scientific development and the secularization of society, almost lapses into that triumphalist mold which other contributors, notably Rudwick, condemn No one could accuse Richard Westfall of an insensitive account of Kepler, Descartes and Newton, but his ingenious narrative, showing how Kepler's Trinitarian theology gave way to Descartes's god-of-the-philosophers, to Newton's proto-deism, is self-confessedly whiggish in its superimposition of a certain inevitability on the challenge which science would pose for a traditional Christianity. Readers of the *Bulletin* will be disappointed to find so little on the history of medicine, on the complementary (and sometimes competing) roles of doctor and priest The place of science in atheist and materialist polemics is also underplayed. Nevertheless, this is a rewarding and stimulating volume which fills a conspicuous gap.

Reviewed by **JOHN HEDLEY BROOKE**, Department of History, University of Lancaster, Bailrigg, Lancaster, England.

KRISTIAN BOSSELMANN-CYRAN (ed) ***"Secreta mulierum" mit Glosse in der deutschen Bearbeitung von Johann Hartlieb.*** Pattensen, West Germany Horst Wellm Verlag, 1985 (Wurzburger medizinhistorische Forschungen, no. 36) iv + 357 pp. DM48,00 (paperbound)

The *Secreta mulierum,* falsely attributed to Albertus Magnus, represents one of the most widely circulated gynecological and sexological textbooks of the Middle Ages and of early modern times. Contrary to its suggestive title, this work reveals but a few of women's secrets (e g , proof of virginity, nature of menstruation, sexual desires during pregnancy, and so on), and deals mainly with the development of human life in the womb under the influence of the stars, with birth defects, and with the causes and treatment of sterility. More than seventy-five Latin manuscripts and roughly fifty incunabula of the *Secreta mulierum* are known. The text has also been translated several times into Dutch, German, French, and Polish

Bosselmann-Cyran studies the German text of the *Secreta mulierum* composed by Johann Hartlieb between 1460 and 1465 for the Bavarian Duke Siegmund whom he served as personal physician Shortly thereafter this text was also adapted for the Emperor Frederick III. According to the editor, Hartlieb's work far surpasses that of a conventional translation (p 29). In his attempt to offer an all-encompassing and at the same time comprehensible presentation of the gynecological knowledge of his time, Hartlieb expands his Latin source on numerous occasions not only with passages from other Latin works such as *Gynaecia Muscionis,* Gilbertus Anglicus's *Compendium medicinae,* and *De passionibus mulierum,* also known as *Trotula,* but also with his own commentaries and criticism of the Latin text with which he frequently disagreed (pp 29–38).

After his brief introduction, Bosselmann-Cyran describes at great length the eight manuscripts of Hartlieb's *Secreta mulierum* in the "Duke" and "Emperor" versions and discusses their relationship (pp 39–78). The edition, which is highly commendable for its accuracy and reliability, follows Munich, Bayerische Staatsbibliothek, Cgm 261 (pp. 89–252). All necessary additions and emendations are carefully identified in the text and documented in the critical apparatus, which is occasionally somewhat overburdened by insignificant variants, so that the reader is able at all times to verify these interventions.

Of great value for the non-Germanist and the non-medical historian are the extensive explanations of the esoteric astromedical terminology immediately following the edited text (pp 255–317). These, however, have one major disadvantage, as the editor treats the individual words and concepts in the order of their occurrence in the text rather than alphabetically, thus unfortunately reducing their usefulness It is unclear why Bosselmann-Cyran includes a table of contents of the *Secreta mulierum* in Latin and in other German versions at this point (pp 319–23) rather than earlier on with the manuscript descriptions, and equally unclear why a list of proper names and geographical locations—this time in alphabetical order (!)—is separated from the textual notes by text specimens of the *Secreta mulierum* from Latin and German manuscripts and by various paleographical and codicological data stemming from the edited manuscripts (pp. 325–36)

These shortcomings are, however, only of a technical nature and in no way diminish the editor's accomplishment. As Bosselmann-Cyran announces a sequel to this study, which will consist of an investigation and edition of *Das Buch Trotula,* a comparable treatise translated by Hartlieb (p iv), we may look forward to another sample of the editor's excellent scholarship

Reviewed by FRANCIS B BRÉVART, Department of Germanic Languages and Literatures, University of Pennsylvania, Philadelphia, Pennsylvania

HAROLD J COOK. *The Decline of the Old Medical Regime in Stuart London.* Ithaca, New York, and London· Cornell University Press, 1986. 310 pp Ill. $29 95.

Harold J. Cook's *The Decline of the Old Medical Regime in Stuart London* is a superb account of the College of Physicians' regulatory behavior which to its detriment attempts to be more than solid political and legal history The core of the book is a beautifully researched, forcefully written analysis of the College's actual and attempted regulatory actions amidst the flow of major political events from 1630 to 1704. But around this solid core are a variety of hazy fringes in which Cook speculates unpersuasively about such issues as the rise of an essentially free market economy in seventeenth-century medicine and the reasons for the mid-century shift in intellectual orientation by many of England's university trained physicians. His episodic discussion of iatromechanism and its role in the College's intellectual and political life also merits scrutiny, although for now I will leave that task to others

The core of Cook's study is a richly documented story of political opportunism Since the officers and fellows of the London College (originally chartered by Henry VIII in 1518) were increasingly vulnerable to intellectual criticism and direct competition as the seventeenth century progressed, they relied on their institutional authority as a royal corporation whenever they could But this meant that the College's political and legal power waxed and waned with the Crown's. In the 1630s, during the period of Charles I's "Personal Rule," the College was strong and aggressive because it could count on the powerful support of the King's highest judicial and political bodies. During the Civil War and the triumph of Parliament, the College grew weak and tried variously to shift its political ground. The Crown remained relatively weak during the sixties even after the Restoration under Charles II, and the College defensively faced major challenges of several kinds without significant royal support Only with the reassertion of strong royal authority in the late 1670s did the College revive aggressive regulatory activities The College's disciplinary efforts peaked in the 1680s under James II, but in the next decade its authority declined once again as the power of the monarchy ebbed after the Glorious Revolution of 1688. Publicly-exhibited internal dissension at the close of the century further contributed to the decline of the College, a decline which was confirmed in 1704 by the House of Lords' decision in Rose's case The Lords granted apothecaries the right to practice medicine despite the opposition of the physicians and in contradiction to chartered rights. In sharp contrast to the Paris Faculty of Medicine, which at the beginning of the eighteenth century could still rely on a strong monarchy in a continually corporative state, the physicians of the London College had effectively lost their privileged legal position and their remaining pretense of regulatory authority

Surrounding this well-told tale are a series of speculative excursions Some of these allude to the growth of a patient-controlled, remedy-oriented medical "market" in which every type and grade of practitioner competed freely with every other Apothecaries, university trained physicians, and uneducated quacks all offered much the same pills and procedures and accurately saw one another as direct competitors Thus, the College of Physicians' defeat in Rose's case "publicly endorsed" the era of the "medicine show," which had already been in active rehearsal during the preceding century (p. 253). Cook also speculates about the forces that at mid-century drove certain Collegiate physicians to take up new currents of philosophical thought and scientific research and to organize themselves into investigative groups In the midst of the intense political turmoil of the English Civil War and the Restoration, Collegiate physicians engaged in well publicized collaborative research projects which, they claimed, were intended solely to advance medical science and to improve learned practice. Cook argues that while this new scientific activity may "incidentally" have helped physicians "maintain their place at the top of the medical hierarchy as learned men" (p. 109), in fact its real motivation lay in "reformist" intentions and the wish to "escape" from political engagement into a "program of quiet research" (p. 118).

I find both of these arguments unconvincing First, as to the rise of the allegedly free medical market, Cook himself acknowledges that "a patient's income and social position frequently affected what kind of medical practitioner he or she sought out" (p. 60). He also admits that various grades of physician quite possibly did different things much of the time and that university educated physicians (and probably the majority of their patients) certainly thought that M D s behaved differently from their less educated critics and competitors All this suggests that, rather than rapidly evolving as a free and open market, medical practice in seventeenth-century London to a large extent continued to exist as a heterogeneous but stratified domain Cook should at least have considered this possibility seriously and pursued its economic implications before issuing his weakly documented proclamations. Second, as to changes in the intellectual orientation of Collegiate physicians at mid-century, Cook seems rather confused. He presents evidence throughout his study that seventeenth-century physicians were extraordinarily concerned about their public image and invariably aware of the usefulness of appearing intellectually impressive to the public. Cook even cites Charles Webster's careful studies of the mid-century College and endorses his remark that, "on intellectual matters, the Fellows [of the College] were strikingly successful in capturing an up-to-date image" (p. 120) Yet Cook withdraws from Webster's entirely plausible conclusion that co-optive political considerations apparently motivated much of the Collegiate physicians' intellectual behavior Why Cook selectively omits this explanatory possibility is nowhere made clear

On balance, I find it difficult to avoid the conclusion that Cook marred an excellent political and legal history of the seventeenth-century College of Physicians by the need he felt to be more broadly interpretive While his ambition for a synthesis linking institutional history with economic and intellectual history is to be commended, Cook can perhaps be chided for trying just a bit too hard Not all questions need to be answered at once, and it is probably both legitimate and wise to attempt first those with which one is most comfortable

Reviewed by THEODORE M. BROWN, Departments of History and Preventive Medicine, University of Rochester, Rochester, New York

K. DAVID PATTERSON. ***Pandemic Influenza, 1700–1900: A Study in Historical Epidemiology.*** Totowa, New Jersey: Rowman & Littlefield, 1986. xvii + 118 pp Ill. $29.50.

K. David Patterson is one of a new generation of historical epidemiologists who are taking up where the great nineteenth-century historical epidemiologists and compilers—Hirsch, Creighton, Thompson and Ripperger—left off His purpose in *Pandemic Influenza, 1700–1900* is to examine influenza outbreaks in the eighteenth and nineteenth centuries in detail, using primary sources wherever possible and asking questions based on modern genetic knowledge of the disease, with the aim of providing a broader perspective on the disease In general he achieves his purpose.

In his account of influenza, Patterson identifies by their sudden appearance, widespread incidence, high morbidity and rapid spread from an apparent common origin, three pandemics (1729–30, 1732–33 and 1781–82) and two major epidemics (1761–62 and 1788–89) in the eighteenth century, and three pandemics (1830–31, 1833 and 1889–90) and six substantial epidemics (1799–1800, 1802, 1836–37, 1841–43, 1847–48 and 1899–1900) in the nineteenth century All of the pandemics and some of the serious outbreaks of influenza appear to have originated in Asiatic Russia and to have spread in a southwesterly direction across Europe and thence to America, though Patterson is properly cautious in accepting this as a sole attribution of origin. Some of the lesser outbreaks appear to have moved south to north or north to south across Europe. Patterson suggests that each of the pandemics was marked by a major antigenic shift in the virus; he also suggests that these viral shifts had their origins in influenza-like infections in animal populations—notably horses and ducks—though of course, as he admits, he has no firm historical evidence for either of these propositions. For all this the author makes a convincing case which is presented with admirable simplicity and clarity The maps are excellent

Yet his distinctions between pandemics and ordinary epidemics and between herald and trailer outbreaks are very vague; his evidence for these differentiations is not conclusive and the assurance with which he makes them is unjustified. It is also a pity that such a good work should be marred by bad editing The spelling of proper names varies wildly, footnotes and index citations refer to the wrong pages, and page 90 is cut off in mid-sentence

Nonetheless, in general, this is an admirable piece of scholarship, providing a model for future extensive studies, not only of influenza, but of the other great epidemic diseases of early modern times.

Reviewed by JOHN NORRIS, Division of the History of Medicine, University of British Columbia, Vancouver, B.C, Canada

---

JOAQUÍN DE VILLALBA. ***Epidemiologia española*** (facsimile of 1803 edition) Málaga, Spain. Universidad de Málaga, 1984. 348 pp. No price given (paperbound)

ANTONIO CARRERAS PANCHÓN ***Joaquín de Villalba (1752–1807) y los origenes de la historiografía medica española/Joaquín Villalba (1752–1807) and the Origins of Spanish Medical Historiography.*** English translation by David W Schofield. Málaga, Spain Universidad de Málaga, 1984 173 pp No price given (paperbound).

Joaquín de Villalba was a Spanish physician and surgeon whose classic study *Epidemiologia española* is considered one of the landmarks of Spanish medical historiography. It was published in 1802, revised in 1803, and was the sole work published by the author during his lifetime The two-volume work is described by the author as a chronological history of the plagues, contagions, epidemics and epizootics that have afflicted Spain throughout its recorded history The first volume covers the period from 1800 B C. to A.D. 1599, the second, from 1600 to 1801. No single year receives more than two or three pages, but several recurrent diseases and themes are given substantial attention Among the diseases most frequently cited are leprosy, smallpox, erysipelas (St. Anthony's fire), plague, syphilis and yellow fever, many others, of course, cannot be readily identified Other topics prominently featured by Villalba are surgery, pharmacy, veterinary medicine, the influence on disease and epidemics of physicians (including Arab physicians), the *Protomedicato,* hospitals and the Church *Epidemiologia española* is justly considered a basic work for the study of almost any aspect of Spanish medicine prior to the nineteenth century

Historians of medicine will surely be pleased with the facsimile edition of this rare work which was published by the University of Málaga in 1984. It includes the two original volumes of Villalba bound together in a single book Furthermore, Antonio Carreras Panchón, professor of the history of medicine at the University of Málaga, has contributed a well written and scholarly preliminary study that is offered as a companion volume Carreras Panchón's study provides the best account which has yet appeared on the life and writings of Villalba One cannot read this fascinating biography and fail to admire the achievements of Villalba as he struggled incessantly to pursue a scholarly career despite the difficulties of poverty, ill health, and a middle-class background On one occasion he served fourteen months in prison for a political indiscretion However, he never abandoned his interest in medical history In addition to his one published book, Villalba left various unpublished manuscripts, some of which Carreras Panchón views as significant for medical history Perhaps Carreras Panchón's most important personal contribution to the study of Villalba and his famous book is his conclusion that two prominent Spanish historians, Antonio Hernández Morejón and Anastatio Chinchilla were not "guilty," as had been charged by some (in a heated episode that Francisco Guerra has called "the great controversy") of plagiarizing some of the unpublished writings of Villalba.

The publication of this two-volume set of the *Epidemiologia española* and the bio-bibliographical introduction to it makes an important older work readily available once again, and places the author and his work in a historical and scientific context. The fact that Carreras Panchón's companion volume is printed in both Spanish and English will guarantee a much wider audience for Villalba and his works David W Schofield prepared the excellent English text of Carreras Panchón's introductory study; the *Epidemiologia española* appears, of course, only in Spanish. One might have wished that Carreras Panchón had supplied an index for Villalba's book, but in every other respect he has provided an outstanding scholarly resource for historians of Spanish medicine

Reviewed by DONALD B. COOPER, Department of History, Ohio State University, Columbus, Ohio

JOHN C GUNN *Gunn's Domestic Medicine* (facsimile of the 1st edition) With an introduction by CHARLES E ROSENBERG Knoxville. University of Tennessee Press, 1986. xxi + 440 pp No price given (paperbound)

The history of domestic medicine has come a long way in the past ten years and is clearly still in favor, judging by this facsimile first edition of John Gunn's *Domestic Medicine* (1830), complete with an introduction by Charles Rosenberg. Gunn was a well-used popular author in the western and southern United States, and the opportunity of displaying his medical philosophy and methods in full was evidently considered too good to be missed. This book is a useful addition to the growing literature on the subject, and encourages the hope that other reprints will be undertaken in this field, notably the more renowned prototype, William Buchan's *Domestic Medicine.*

Having said that, however, a large undigested slab of John Gunn with a small hors d'oeuvre by Rosenberg is not the best way of familiarizing the casual reader with the nuances of traditional domestic practices, and neither is it quite enough for the specialist. Rosenberg pitches his commentary somewhere in between the two audiences, but he is hampered by the lack of space in which to discuss Gunn's position in detail on such large topics as medical botany, surgical and pharmaceutical skills, midwifery, hygiene, the Temperance movement, "heroic" drug use, and so on Likewise, essential bibliographical problems such as the nature of Gunn's audience, the chronology of editions, or indeed the numbers and types of Gunn's rival authors in this period, can only be referred to fleetingly

Instead Rosenberg concentrates on giving a picture of Gunn as a traditional health author anxious to accommodate the audience of his day, unblushingly mixing both "vernacular and high culture traditions" of therapeutics (p. xix). He quite rightly points out that Gunn's widespread success (nineteen local editions between 1830 and 1840) implied that "a good many Americans saw no need to take sides, to declare themselves committed and exclusive advocates of either botanic or regular medicine" (p. xv) One reason for this was undoubtedly the large portions of the book where Gunn recited the "age-old hygienic wisdom" of temperate control over the non-naturals (especially the passions), combined with faith in the simple commands of the God of Nature. In addition, as Rosenberg suggests, Gunn's no-nonsense adherence to humoralism, and his understanding of his patients' low budgets and rural habitat, led him to do what popular authors had done "since at least the seventeenth century," namely to encourage the use of readily-available local herbs and simple drugs, and small surgery. The herbal, the dispensatory, and the bloodletting advice at the back of the book would alone have ensured regular sales; the advice on French clysters and catheters, frictions, and sulphur baths were Gunn's own particular contribution

Like so many advice-book authors, Gunn is immediately accessible only through his published work; but there may be more mileage in this text How easily, for example, did the democratic polemic sit with his "heroic" use of calomel? Was he a bona fide hygienic physiologist, and did he play any part in any Temperance crusades, or in the public baths movement in Nashville (pp. 116–17)? What of the more curious French "influences"? Rosenberg has provided a tantalizing introduction to practical domestic medicine on the frontier

Reviewed by VIRGINIA SMITH, Wellcome Institute for the History of Medicine, London, England.

FRIEDRICH TIEDEMANN. ***Das Hirn des Negers mit dem des Europäers und Orang-Outangs Verglichen*** (1837). Facsimile with a new introduction by HANS-KONRAD SCHMUTZ Marburg, West Germany· Basilisken-Presse, 1984 (limited edition). xxv + 90 pp Ill. DM68,00.

In the history of the white man's attitude toward non-whites, the figure of Friedrich Tiedemann stands out as an early advocate of equality based on anatomical science in early nineteenth-century Heidelberg His classic of 1837, *On the Brain of the Negro Compared with that of the European and the Orang-Outang,* is therefore most deserving of this reprinting. Born in 1781, and well known by his mid-fifties not only as a comparative neuroanatomist but also as the co-author of Leopold Gmelin's fundamental study on the gastric juice (1826–27), Tiedemann felt compelled to influence the persistent argument following the British Parliamentary debate regarding black emancipation in the colonies Hence his original publication was in English in the *Philosophical Transactions* of the Royal Society (1836) His liberal, humanitarian outlook was schooled on the classical and Romantic teachings of Gottfried Herder and Friedrich Wilhelm Schelling he also opposed the death penalty by decapitation (1827), long before he had to accept his own son's execution by firing squad for having participated in the revolution of 1848

It would be unfair to belittle the precision and honesty of Tiedemann's effort to underpin the Negro's human worth based on the size of his brain or, mostly by inference, his skull. Yet he was criticized by his peers for using somewhat compressible millet seed to fill the empty cranial specimens of the different races As a result of this procedure, he found that the respective weights of the fillings did not significantly differ from one race to the other. (He added a few comparative measurements of actual brain lengths and breadths.) Measurements were obtained by both the author and by cooperation from other investigators at other academic centers in Germany, France and Holland. Many of the book's eighty-four quarto pages are taken up by large tables giving the individual measurements of 186 Caucasian, 70 "Aethiopian," 45 Mongolian, 31 "American" (i.e., Indian), and 98 Malayan skulls (Blumenbach's terminology), also those of smaller numbers of women (with relatively smaller brains, pp 8–9) and children, all expressed in ounces, drams, and grains There are five large, fine plates illustrating Negro, Hottentot and "orang-outang" brains

Tiedemann's conclusion, based on the negligible differences he found, was a negation of the prevalent doctrine held by Camper, Soemmerring, Cuvier and other "famous naturalists and anatomists and almost universally accepted, that the Negroes are a human race in organization and mental power far behind the populations of the Caucasian and other races, and closely related to the apes" (p 48). (As to the latter, he also refuted Soemmerring's contention that the relative coarseness of Negro cranial nerves compared to their brain size resembled the ape's cranial nerves.) In fact, "no essential difference exists in either the structure of the brain or in mental capacity." Only a few European and Malayan brains were found to be larger than the common average (p 63). An insufficient number of observations existed to arrive at a definite conclusion regarding the correlation between the "size of the brain as related to the whole body .. but this seems to be the case" (p. 18)

Over one-fifth of the text is devoted to refuting the general claim of the Negro's mental inferiority, going back to the philosopher Hume. Without quoting Blumenbach's multiple earlier examples to this effect, Tiedemann referred to a number of black cultural achievements and the superiority of unmolested tribes living in the interior of the African continent. The Negroes most encountered by his contemporaries were the miserable "remnants of subjugated coastal populations having lost their national character, raided by people from the mountains the result of the slave trade .. that indelible stain left on the history of the European nations" (p. 65) At this date it may be fair to state that no attempts to prove or disprove Tiedemann's premise or his conclusions have stood up to criticism

The present facsimile edition (from the dawn of anthropology) has a most informative, well referenced twenty-four-page historical introduction by Hans-Konrad Schmutz

Reviewed by FRANCIS SCHILLER, Department of the History and Philosophy of Health Sciences, University of California, San Francisco, California

---

JUSTUS VON LIEBIG and AUGUST WILHELM HOFMANN ***Justus von Liebig und August Wilhelm Hofmann in ihren Briefen.*** Edited by WILLIAM HODSON BROCK. Weinheim, West Germany, and Deerfield Beach, Florida. Verlag Chemie, 1984 262 pp DM72,00.

Justus von Liebig (1803–83), professor at Giessen from 1824 to 1852 and then at Munich, was one of the most influential chemists of the nineteenth century, not only on account of his experimental and theoretical work but also because many students from his Giessen years became distinguished chemists. One of these was A. W. Hofmann (1818–92), whose correspondence with Liebig is now made available by W. H. Brock, who gives us the texts of the ninety-six letters written by Liebig and fifty-seven by Hofmann (with some relevant letters to or from other correspondents) that survive in Giessen and Munich.

In 1845 Hofmann became the first professor at the Royal College of Chemistry in London, a privately funded institution intended to encourage the applications of chemistry. The first few letters make it clear that, although Liebig encouraged him, Hofmann was a reluctant candidate, and he ensured that a chair was kept available at Bonn for his anticipated return after a few years. In the event, he stayed in London for twenty years, and when he came back to Germany it was to Berlin. By then Liebig, weary of his heavy teaching load at Giessen, had moved to the less demanding chair at Munich, and it is interesting to note that in 1863 he advised Hofmann not to return at all to Germany, where professors were overworked. He knew that Hofmann enjoyed a very substantial income from consulting work in London, as well as his professional salary which was guaranteed after the government took over the Royal College of Chemistry in 1853.

The correspondence naturally includes references to the research of the two friends, but it is more important for the light it casts on their personal relationships, including Hofmann's unrequited love for Liebig's daughter (he eventually married Liebig's niece), the business projects in which they were involved and, particularly from Liebig, their candid opinions of contemporaries. In 1850, for example, Liebig was embarrassed by having to write testimonials for three former students who were candidates for the chair at Manchester; he did not wish to offend J. Stenhouse or R. A. Smith, but he had to admit his preference for Edward Frankland, who was in fact appointed.

Photographic reproductions of ten letters make clear the difficulty incurred by Brock in merely reading them, and he is generous in acknowledging the help given by various colleagues, especially the late Elizabeth Wangemann, who transcribed many letters from the original "gothic" script into modern handwriting. Brock's biographical and historical introduction sets the scene for the correspondence and, with the detailed notes appended to each letter, he has given us a book that is of value not only to historians of chemistry but to all who seek an insight into the workings of the academic communities in Britain and Germany. An English abstract of each letter is included in an appendix which serves as a useful guide to the correspondence, but it is unfortunate that the publishers have not provided an index.

Reviewed by WILLIAM A. SMEATON, Department of History and Philosophy of Science, University College London, London, England

---

HARVEY GREEN. ***Fit for America: Health, Fitness, Sport and American Society.*** New York: Pantheon Books, 1986. xvi + 367 pp. Ill. $24.95.

Historians of American medicine will welcome this rich excursion into popular attitudes toward health and popular approaches which do not rely on the services of orthodox physicians to retain and to regain it. Harvey Green, a museum curator, has found his evidence on keeping fit in ephemeral advertising, books for the masses, letters and diaries, photographs, and such surviving examples of material culture as bottles, dumbbells, and electrotherapeutic gadgets Abundant illustrations help him make his case. Green is aided in his interpretations by insights from a number of secondary works, although others equally relevant are not cited James Whorton's *Crusaders for Fitness,* which Green uses to advantage, is more intellectually probing than *Fit for America,* although not so expansive in the facets of fitness its author chooses to consider.

Green traces through three periods of American history—1830–60, 1860–90, and 1890–1940—five major modes of striving for fitness: diet, ways of using water; sanitation; magnetism and electricity, and exercise Continuity through the period, he suggests, went beyond the persistence of these modes. The quest for fitness revealed a constant reliance on "freewheeling eclecticism," a shunning of "orthodoxy and dogma" (p. 317), an emphasis on individual responsibility, a preoccupation with the "themes of regeneration and renewal" (p. x), and an endless parade of prophets offering dubious counsel and scoundrels offering quackish nostrums and devices.

The differences among the periods, however, seem as significant as the similarities. Popular health ideas mirrored broader changes in the religious, economic, political, scientific, and intellectual environment. Green shows subtle insight in establishing such linkages. In the early years, the popular search for health reflected the millennial expectations of religion, but in time it was reshaped by the growing secularism of the surrounding culture An earlier middle class optimism waned under the impact of urban malaise, scientific discoveries, new technologies, bureaucratic discipline, and the threat to Anglo-Teutonic supremacy from ethnic immigrants, leading to pessimism and fear and a concomitant redefining of the prevailing stress-generated ailment. neurasthenia replaces dyspepsia and in turn gives way to autointoxication

The rationale for and the nature of the five main modes of striving for fitness also change markedly through Green's three periods. Here he is particularly detailed and rewarding Diet reform for Sylvester Graham, for example, began as a religious recapturing of the natural food eaten in the Garden of Eden By the Progressive years, the dietetic goal was efficient management of the body so as to avoid the waste of energy. Green is especially revealing on Horace Fletcher, the multiple-mastication mentor, using his correspondence to discover his notable disciples, including Edward Bok, Arthur Conan Doyle, William and Henry James, S. S McClure, John D. Rockefeller, and Upton Sinclair

Green's most original tracking of a mode of keeping fit may be his account of calisthenics, gymnastics, physical education, and sports Before the Civil War, the primary emphasis fell on energizing young men who had declined in hardiness by leading an artificial way of life. A crusade to achieve "muscular Christianity" followed the war. Later team sports proliferated, with winning more important than healthy participation, to prepare men to compete in the burgeoning corporate culture, and to combat, if need be, the world's other nations and races. Women became increasingly involved with exercise, a fact which influenced dress reform

Vivid vignettes of key figures in his chronicle enliven Green's pages, among them Catharine Beecher, Dudley Sargent, Eugene Sandow, Bernarr Macfadden, and—in his role as advocate and exemplar of the "strenuous life"—Theodore Roosevelt *Fit for America* also illuminates ways in which men and women and their roles were deemed different in American culture· in a dozen or more places in the book, Green alludes to female distinctiveness

All these views from the bottom—or, at least, from the middle—of health-seeking endeavor should provide a helpful perspective to historians concerned with orthodox medical practice during the century and more which Green considers

The reviewer finds little to question in Green's nicely crafted study. The author might have done somewhat more with the role of the American Indian in popular health culture Green credits the 1920s with accentuating and glorifying the female bosom, whereas the reviewer's survey of advertising in that decade reveals instead an overwhelming emphasis on the flat-chested little-boy look. And, while there are a few intriguing references in *Fit for America* to our own day, one can only regret that Green did not include a fourth time period bringing his informative and absorbing account of fitness up to the present

Reviewed by JAMES HARVEY YOUNG, Candler Professor of American Social History Emeritus, Emory University, Atlanta, Georgia.

FREDERICK LAW OLMSTED. ***The Papers of Frederick Law Olmsted***, vol. 4, ***Defending the Union: The Civil War and the U.S. Sanitary Commission, 1861–1863.*** Edited by JANE TURNER CENSER. Baltimore and London The Johns Hopkins University Press, 1986 xxv + 757 pp. Ill $40 00.

This fourth volume of the papers of Frederick Law Olmsted, edited by Jane Turner Censer, chronicles Olmsted's Civil War experience. At the outbreak of hostilities between the North and the South, Olmsted was architect-in-chief and superintendent of New York's Central Park. Increasingly frustrated with these responsibilities, he looked to the war to provide him with a new mission. One was forthcoming, when in June 1861 he was named general secretary of the newly created United States Sanitary Commission This humanitarian relief organization, founded on the model of the British Sanitary Commission of the Crimean War, was charged with assisting the small and beleaguered Medical Department of the army in caring for the flood of Union volunteers. Under Olmsted's guidance, an adminstrative structure was erected, procedures for the implementation of the Commission's goals were established, a first-rate staff was assembled, and a system for the equitable and efficient distribution of supplies to soldiers was put in place. This was no mean feat, as from early on Olmsted had to fight state and municipal rivalries in the procurement and distribution of supplies. But he persisted, and by the time Olmsted left the Sanitary Commission in September 1863 it had become renowned for its work in the hospitals and camps and on the battlefield. Olmsted and the Sanitary Commission also played a prominent role in the successful campaign to reorganize the army's antiquated Medical Department and to secure the appointment of a new, more energetic Surgeon General.

Olmsted quit the Sanitary Commission because of an unbreachable rift with the organization's governing board over policy matters and the question of administrative authority He sought a new mission, and financial security, as superintendent of the large Mariposa gold mining estate in California While Olmsted's tenure with the Sanitary Commission yielded important, even outstanding, results, his accomplishments, Censer contends, fell short of his "lofty aspirations" for the organization. "Still," she writes, "the Commission must be seen as one of the great voluntary, nationalistic and bureaucratic achievements of the war" (p 61)

But Olmsted's wartime activities were not confined to the organization and administration of the Sanitary Commission. Long interested in the replacement of slave labor with that of freedmen, he sought an active role in the planning for and supervision of blacks on South Carolina's sea islands after they fell into Union hands. Olmsted's strong desire to nurture nationalism in the North, among intellectuals in particular, prompted him to cooperate with Oliver Gibbs in devising a plan for a patriotic and educational organization (the Union League Club) and Edwin L Godkin in planning a newspaper of political and intellectual opinion (the *Nation*). These efforts, however, met with little success, Olmsted's mark on the Port Royal experiment was negligible; the Union League Club failed to adopt his nationalistic and educational platform; and the launching of the *Nation* lay with Godkin in the future. Olmsted enjoyed greater success in pursuing several other pre-war interests, such as sanitary reform, the study of the nature of the American character and the influence of immigration upon it, and the examination of the distinctiveness of American life

The Civil War experience of Frederick Law Olmsted serves as a valuable lens for viewing this crucial chapter of American history from the perspective of a concerned and involved intellectual. Olmsted described his wartime activities and expressed his opinions on the major events and issues of the day in over one thousand letters, newspaper articles, circulars, and reports This volume presents approximately 150 of these documents (some for the first time) They have been carefully selected, expertly edited, and informatively presented The result is an important contribution to the literature of the Civil War and a towering example of excellence in historical editing

Reviewed by JAMES O. BREEDEN, Department of History, Southern Methodist University, Dallas, Texas

MARY ELIZABETH CARNEGIE *The Path We Tread: Blacks in Nursing, 1854–1984.* Philadelphia. J. B. Lippincott, 1986 xviii + 254 pp Ill. $22 50

DARLENE CLARK HINE (ed) *Black Women in the Nursing Profession: A Documentary History.* New York and London Garland Publishing, 1985 (History of American Nursing series). xiv + 165 pp Ill. $25 00.

Though the broad social differences between black and white experiences in America are documented in other areas, the story of black women in the nursing profession remains shrouded in unexamined memories and little explored documents These two works are early and important efforts to begin to remedy this neglect. The history of American nursing is only now emerging as a subject of scholarly interest; even acknowledging this context, the story of black nurses has been remarkably invisible. It is an important story, encompassing the effect of segregation, aspects of women's work, the ideology of racial self-help, the impact of government policies on health and education, the coalitions of individuals and groups seeking social change, and the often devastating health problems of blacks in twentieth-century America

Mary Elizabeth Carnegie, a distinguished elder stateswoman of nursing, outlines the contributions of black women to nursing using a chronological format beginning with the Crimean and the Civil wars Hers is an unabashedly celebratory history The contributions of black women to military nursing, the development of educational programs, the special efforts to increase the number and quality of black nurses, the history of black nursing organizations and biographical sketches of many black nurses are all here. Carnegie's account is one of constant striving, from 1909, when a black nurse sued to obtain the right to take the Florida State Board examination for registered nurses, to 1941, when the Florida State Nurses Association voted to delete the word "white" from its constitution. Her account documents the segregation of blacks from whites in nursing, as in all society, from the founding of the earliest training schools for black nurses in 1886, to the closing of the last all-black diploma program at the Harlem Hospital Center School of Nursing in 1977

This is a useful book, with one major disappointment, of which the author warns us in her preface Carnegie chose not to interpret the events she chronicles nor does she develop the context for these events Thus, this is a compendium of facts with no analysis The author's reticence deprives readers distant from these events of a better understanding of their meaning. We very much need to know what this erudite, skillful and distinguished nursing leader thinks about the saga she records She has done us a great service by calling attention to people and events hitherto overlooked and historians will, I believe, be attentive to the opportunities she reveals But, it is my hope that Carnegie herself will write an interpretation of the history of black nursing in which she played such a significant part

Black Women in the Nursing Profession is a quite different approach to filling the historical gap in women's history and the history of the black experience in America Darlene Clark Hine has put together an anthology of papers tracing the emergence of black nursing Her collection covers the twentieth century from 1899 to 1976 Included are surveys and reports on black nurses, proposals and critiques of educational programs, organizational accounts of the struggle for integration and interpretations of the black nurse's role in health care Each paper is introduced briefly by the editor who also provides an overview of the history of black nursing

Hine offers insight into the persistence and pervasiveness of the concept of women as educated caregivers The devotion of extremely scarce black resources to nurse education and to hospital development reminds us that early twentieth-century health reforms permeated all aspects of American society The black experience, however, most clearly illustrates the "self-help" part of this reform movement The institutionalization and professionalization of care of the sick was more than an elite, benevolent or controlling strategy of the upper layers of American society, it was a powerful movement to which people of all kinds committed themselves Nowhere in these documents is the strategy of professionalization questioned, the issue is always how to attain training, practice opportunities, and recognition The combination of the hope for a better quality of life for the people and a way to upward mobility for the practitioner resides in all these documents Small gains and frustrated efforts are reported here Inequalities of opportunity are made graphically clear.

These two books are maps to virtually unexplored historical territory Hine samples almost unused; rich material which can be mined to our intellectual and social benefit. Carnegie chronicles a past, giving us a glimpse of its meaning to the participants. We will all profit from their pathfinding.

Reviewed by JOAN E. LYNAUGH, Center for the Study of the History of Nursing, University of Pennsylvania School of Nursing, Philadelphia, Pennsylvania.

JEAN-CLAUDE BEAUNE *Le vagabond et la machine: essai sur l'automatisme ambulatoire; médecine, technique et société en France, 1880–1910.* Seyssel, France: Champ Vallon, 1983. 397 pp. F138,00 (paperbound) (Distributed by Presses Universitaires de France.)

Jean-Claude Beaune's book, like its subject, the vagabond, is wandering, idiosyncratic, given to repetition, and, by the author's admission, has "no pretention to scientific objectivity" (p. 7) In defending marginality against society's work of defining, stigmatizing, and, ultimately, destroying individuality of any kind, Beaune sounds a now familiar and perhaps even hackneyed battle cry.

For Beaune, the vagabond is prototype and archetype of the "other" in a more radical way than related species of social deviance such as the criminal, prostitute, savage, madman, black, Jew, celibate, and so on. Unlike the domesticated modern beggar or *clochard* of Paris and other urban centers, the dangerous "being of the night" evoked by Guy de Maupassant's sinister rover named Randel (chap. 1), appeared down through the end of the nineteenth century to defy as well as negate social constructs of the working poor.

Beaune claims that strategies to exterminate the vagabond go back "at least" to the fifteenth century and that persecution began in earnest when the witch hunts of early modern Europe left off, finally, and most important, medical discourse of the late nineteenth century diagnosed vagabonds as virtual pathological machines. Social scientists aided by legislators thus carried to completion a "theoretical genocide" (p. 388), a preview of what the twentieth century would produce on a massive scale. Quotes from physicians writing on mendicity at the turn of the century illustrate the thesis.

Although Beaune's contention is not original, his penchant for flights of rhetoric and generalization and his impressionistic use of evidence make assessment and, at times, comprehension of this provocative work nearly impossible The only sustained recourse to the empirical method comes in the chapter on ambulatory automatism, where Beaune reviews pertinent neurological literature in the decades before and after Charcot's creation in 1888 of that nosological entity as a sub-type of hysteroepilepsy. By reducing the sociocultural meaning of vagabondage to a machine-like syndrome of neurological degeneration, Charcot and his followers co-opted the Cartesian heritage for medical and social policy Beaune argues that they also distorted, radicalized, and vulgarized the more subtle and humane Cartesian understanding of man. He suggests that ambulatory automatism served as a kind of bridge leading from hereditary-based degeneration theory to Janet's psychological automatism and, finally, to Freud's "epistemological rupture" that reinterpreted neurological automatism in terms of psychic conflict and ego defense against the unconscious

Valuable *aperçus* like the above make one regret that Beaune, who is the editor of the series in which this book appears, could not have had his own work edited by someone else. Although obviously inspired in content and style by the late Michel

Foucault, the present work is less disciplined and often less intelligible than Foucault Like the master, Beaune taps multiple discourses among which philosophy and literature predominate. Numerous references to other epistemologists in these domains such as Georges Canguilhem and Jean Borie respectively make a useful contribution. On the other hand, the lack of mention of highly relevant work by other French (to say nothing of foreign) scholars in nineteenth-century history of science, medicine, and psychiatry is conspicuous

Reviewed by TOBY GELFAND, Hannah Chair of the History of Medicine, University of Ottawa, Ontario, Canada

---

E H. BURROWS ***Pioneers and Early Years: A History of British Radiology.*** St. Anne, Alderney, Channel Islands Colophon, 1986. viii + 264 pp Ill £32 50.

During the 1960s, two major works on the history of radiology were published, *Classic Descriptions in Diagnostic Radiology* by A J. Brewer and *The Trail of the Invisible Light* by E. R N. Grigg. These books were monumental undertakings, attempting a world view of radiology British radiologists and their contributions were mentioned in both of these works, but in *Pioneers and Early Years* we are given for the first time a synopsis of the whole field of radiology in the United Kingdom during its formative years

Burrows has amassed a large amount of information in his book The first four chapters deal with the discovery of X-rays in Germany, the reception of the news of the discovery in Britain, the first experimenters, and the early apparatus and its makers. The next three cover the founding and development of early X-ray departments in London and provincial hospitals Radiological journals and societies, military radiology, and radiation injury and its prevention are discussed in the last four chapters. The references are grouped between the text and the index and, to this reviewer's delight, the sources of illustrations are documented in detail.

The chronological range of the book varies from chapter to chapter For example, "X-rays on the Battlefield" describes only the first five years of military use, with a brief note on the teaching of radiography in the Army before 1914 Radiological journals, however, are covered up to 1930. This difference is justified by the subject matter. Those researching in back volumes can be mystified by the frequent changes in title of the British radiological journals, which do not assume their modern names until after the 1940s. Military radiology, on the other hand, becomes a much wider subject during the First World War, and is difficult to deal with in a general text

Integrating biographical material into thematic chapters causes problems with which the author has dealt in an unusual way. Each biographical entry is inserted in a smaller typeface in the relevant chapter. Where the subject's activities are treated in several chapters, the biography is split into two or more sections, which are then cross-referenced. The length of each biography varies from a couple of sentences to a half page or more The pioneers thus described are not only medical radiologists but also radiographers, physicists, physicians, manufacturers and electrical engineers As in the main text, these biographies include material which is not easy to find in the radiological literature

The book is well produced, excellently printed and has well-chosen illustrations, many of which have not been reprinted since their original publication It is difficult to find misprints and errors The tale is well told, and the reader is carried forward by the momentum of discovery and development

My main criticism is that, despite its subtitle, the text is essentially a chronicle rather than a history. No attempt is made to analyze forces or factors in the growth of this young medical specialty, with the exception of the chapter "Societies, Sections and the Institute," where the rival interests of the different professional groups are hinted at There are some areas which are dealt with less thoroughly than others For example, much more could have been written about early apparatus, but perhaps at the risk of disturbing the balance of the book

No doubt many books will be written on the history of radiology before 1995, the centenary of Rontgen's discovery If so, this volume will deserve an important position in such a collection, and it can be read now with enjoyment by medical historians and radiologists on both sides of the Atlantic.

Reviewed by JEAN M. GUY, Radiologist, Yeovil District Hospital, Somerset, England.

ROBERT JAY LIFTON *The Nazi Doctors: Medical Killing and the Psychology of Genocide.* New York· Basic Books, 1986 xiii + 561 pp $19 95

Robert Jay Lifton's latest book is important for the social and political history of the Third Reich, but above all for its medical history Treatises on certain somewhat narrowly defined aspects of the history of medicine under National Socialism have been available for some time now, but a penetrating analysis of the perversions of medicine under Hitler from an expert's pen has been lacking until the arrival of this monograph

Lifton does not purport to have written a comprehensive history of medicine and physicians in the Third Reich His task was to investigate how mass killing predicated on wrong notions of anthropology intersected with the function of physicians in Germany What was the nature of such mass killing, how was it technically possible? How much of it was initially caused by a falsely understood medical science? How did the killing reflect on, or influence, the profession of medicine in Germany?

These are some of the vital questions Lifton poses. In his attempt to answer them, he has recourse to the expertise not only of the historian, but also of the psychologist He uses psychology especially—and I think, convincingly—when attempting to explain the role of the physicians in the mass killing of Jews at Auschwitz I find these particular passages in Lifton's book the most venturesome, because in pushing the limits of his inquiry, Lifton tends to ask more questions than he can answer But their inventiveness and originality make these portions of his text the most stimulating It is because a set of easy solutions to Lifton's roster of profound queries cannot be found that he is justified in introducing fascinating, if not immediately persuasive, hypotheses Thus the book is an experimental challenge for author and reader alike. On balance, it represents creative work at its best

Some criticism has already been leveled at Lifton's interpretations. Christopher Lehmann-Haupt has charged him with the inclusion of too much detail in his study, not just about perverted German physicians as an isolated group, but also about the Auschwitz system, or the roots of racism in Western culture (*New York Times,* 25 September 1986) If Lehmann-Haupt is accusing Lifton of having convoluted his book unduly, one response is that Lifton would have been incapable of portraying the archetypal SS physician that was Mengele without such intellectual detours. The eminent Chicago psychiatrist Bruno Bettelheim has offered his opinion that Lifton is guilty of repetition and that, in any case, it would be a doubtful enterprise "to understand vile acts" of the type committed at Auschwitz (*New York Times*, 5 October 1986) It is true that Lifton repeats facts and circumstances on several pages of his book, but when he does so they appear in a fresh context and illustrate a new argument. Lifton is very much at pains to get his reader to comprehend complicated material, and he may appear overly professorial in doing so, but at least he cannot be faulted for omission, which, in treating such a difficult subject, is far worse than repetition. And as for trying to understand "vile acts"—surely, if that served as one of the writer's motivations, it is a high crime of which every scholar should be guilty Nowhere in his book, however, does Lifton drift into the realm of apologia, or even forgiveness.

What, then, is Lifton's undeniably grand achievement? In order to explain medical killing and the psychological factors at work in genocide, the author has subdivided his book into three main sections In the first he deals with sterilization and "euthanasia" Although the treatment here is historical and chronological, Lifton's implicit analytical purpose is to expound on the twin actions of sterilization and "euthanasia" as necessary (medical) theses of a genocidal dialectic which, unlike the Armenian-Turkish or Soviet Russian phenomena, was possible only *because of* the role of medicine in rendering it rational and hence an evil manifestation of modernity Lifton in his opening section introduces his concept of "biomedicine," incorporating anthropological and political science imagery But at its close, he broaches "psychic numbing," from the conceptual arsenal of psychology and psychoanalysis, and this notion figures prominently in the two remaining parts By itself the first part is not as strong as the other two. Much of the material in it is known since Alice Platen-Hallermund's pioneering work, and especially through the current publications of Ernst Klee; Lifton does not add anything significantly new. (Also, the question might be raised as to why Lifton has elected not to deal exhaustively with medical experiments as performed in ordinary camps, on women, by doctors Treite, Gebhardt and Oberheuser in Ravensbrück, and on men, by Hoven or Ding-Schuler in Buchenwald, and so on These physicians, too, were handmaidens of the Auschwitz system.)

The middle section is the longest, it deals with the process of mass killing in Auschwitz, in what sense this was medical and therefore singular in the annals of human violence, it also analyzes the physicians who were instrumental in such killing. Several factors make this the unquestioned apex of the book Lifton's superb interviews with tens of Auschwitz survivors and former physicians have added much factual history to the already rich Holocaust chronicle The fascinating new details about Mengele's academic ambitions, and his organizational ties with the respectable Kaiser Wilhelm Institute directed by his teacher Otmar von Verschuer in Berlin should be noted especially Lifton, a psychiatrist, then tells us more about "psychic numbing," the condition which, in his opinion, enabled any weak-kneed physician to follow through with murder and such odious tasks as selection on the ramp Lifton also usefully portrays as foils the camp's inmate physicians, who attempted to preserve Hippocratic ethics for themselves This serves to delineate the moral depravity of the Nazi doctors One of the problems Lifton faced here—and I think he came to grips with it—was to explain why German doctors, with an impressive medical tradition behind them, were able to convert from healing to killing, and how they lived through this metamorphosis not as Hitler's zombies but as persons of flesh and blood living with their families (Lifton proffers the formula "killing in the name of healing"—it is comprehensible in the German Nazi context, but not instantly so to students of the general history of medicine) From this section one can understand why Bettelheim, a former concentration camp prisoner, became uncomfortable, for Lifton depicts several of the SS physicians as very human, almost worthy of sympathy. This is driven home in his sensitive treatment of chief Auschwitz physician Eduard Wirths (what a coup to obtain access to Wirths's personal letters to his wife! This is the project's climax, from the perspective of research)

The third and last section explains in greater detail Lifton's paradigm of "doubling," really an extension of "psychic numbing," and completes the story of "medicalized killing" in Auschwitz. "Doubling" owes a large debt to O Rank; it denotes, in the personality of the Nazi doctors, the development of an "Auschwitz self," a specifically Nazi medical persona superimposed on the conventional personality traits, which allowed each of these physicians to be ordinary German medicine men in the nexus of "normal" society. Lifton says that sometimes Auschwitz doctors like Wirths were able to move from one "self" to the other at will. Even the seeming automaton Mengele did this, as he proved in the treatment of his "personal" pathologist Miklos Nyiszli, whose wife and daughter he helped to save Perhaps Lifton makes a little too much of the "Faustian bargain" as something peculiarly German; in spite of what Goethe did with it through poetic license, to have two souls in one's breast strikes me as universally human, and it was an English author who brought forth the ghoulish exemplars of Dr Jekyll and Mr. Hyde.

Nonetheless, the final message of Lifton's book is a global, rather than a specifically "German" one, and one well worth re-emphasizing It comes in the form of a lesson in several parts. Man is both good and bad and may usually choose what he wants to be most; physicians are more at risk in making these choices because their profession allows them to play at the game of life and death; Auschwitz as a modern, rational scheme aided by medicine so far has been unique, but it is potentially repeatable. All told, the value of Lifton's disturbing tome assuredly transcends the narrowly segmented areas of recent German history This book has the grit of a classic.

Reviewed by MICHAEL H KATER, Department of History, Atkinson College, York University, Toronto, Canada

MARTHA C WARD *Poor Women, Powerful Men: America's Great Experiment in Family Planning.* Boulder, Colorado· Westview Press, 1986 189 pp Ill. $33.00 (cloth), $14 95 (paperbound)

Poor Women, Powerful Men is an excellent history of the Louisiana Family Health Foundation, one of the most ambitious of the attempts at social engineering inspired by the "rediscovery" of poverty in the 1960s, and fought by the federal government and large corporate foundations through the delivery of social services In the early 1960s, the health statistics of the poorest third of Louisiana's population resembled those of Third World nations. The appalling rates of malnutrition, infant mortality, and maternal morbidity reflected the desperate plight of black women in a state characterized by an underdeveloped economy, a rigid racial caste system, and a lack of commitment to social justice among the elite, whose political culture often inspired comparisons to banana republics A statewide network of ten charity hospitals provided emergency relief for poor women who were willing to wait in line for hours for often callous treatment, but preventive medicine was not available to the medically indigent

Enter Joseph D Beasley, a pediatrician and instructor in the Tulane University School of Public Health and Tropical Medicine. Beasley, a country boy from Georgia, had a social conscience and the ability to get things done in this world where macho audacity was respected in medicine *or* politics, a world where only a very brave man would champion the rights of women, especially poor black ones In 1964 Beasley set out to break the cycle of illegitimacy, high fertility, high mortality and morbidity that seemed to be a major source of poverty by developing a new health care delivery system outside of existing fee-for-practice services and the alternative charity hospital network. His efforts coincided with the emergence of a strong national commitment to family planning and improved child health care on the part of such federal agencies as the Office of Economic Opportunity and major corporate philanthropies

Beginning with a pilot project in rural Lincoln parish that demonstrated a strong desire among medically indigent women for contraception, Beasley tapped out-of-state sources for over sixty million dollars and built a statewide system of maternal health clinics. His Family Health Foundation seemed to provide a model for the delivery of health services all over the world Clients were treated with respect, and local "outreach workers" proved to be tremendously effective in locating clients and maintaining communication across the chasms of race and class which lay between the health professionals and their patients The statistic-laden reports generated by Beasley's ever-growing staff of technicians, managers, and public relations experts seemed to indicate that the Family Health Foundation was responsible for declining illegitimacy and infant mortality rates, and that its per-patient cost was lower than that achieved by existing state public health bureaucracies. By the early 1970s, Beasley was dean of public health at Tulane, chairman of the Board of Directors of Planned Parenthood, a visiting professor at Harvard, and one of the most energetic members of the National Commission on Population Growth and the American Future

Martha Ward, a professor of anthropology at the University of New Orleans, provides an evenhanded and compelling account of the factors that led to the collapse of the Family Health Foundation Her history ought to be of great interest to those studying the problems of financing and organizing the delivery of health care Beasley's innovative program clearly provided valuable services to thousands of needy women who deeply appreciated the care they received, but the Family Health Foundation's rapid growth depended on dozens of "soft money" grants, each of which carried different stipulations. Federal bureaucrats failed to provide clear guidelines for spending the money that they were anxious to disburse, and corporate philanthropists were eager for statistics on "population dynamics" and models to export that were beyond the capability of the Family Health Foundation Local politicians, black and white, expected to be rewarded for allowing poor women uncontested access to health care State bureaucrats and the medical society became increasingly hostile as Beasley compared his successes to their performance. By 1974 the empire that Beasley had organized began to come apart under a withering barrage of criticism and pressure, and eventually he went to jail because money was skimmed from mobile clinic funds to pay a bribe to a middle-class black man who was threatening to raise the charge of racial genocide against the Family Health Foundation. Martha Ward concludes that Beasley's experiment in social medicine provided many poor women with desperately needed health care It also gave others training as paraprofessionals, won acceptance for the concept of family planning in Louisiana, and demonstrates the barriers that crusaders for social justice still face In many poignant ways, Joseph Beasley personified the contradictions of American society in the 1970s He now practices pediatrics in New York State

Reviewed by JAMES W REED, Office of the Dean, Rutgers College, Rutgers University, New Brunswick, New Jersey

CHARLES D KOCHAKIAN *How It Was: Anabolic Action of Steroids and Remembrances.* Birmingham University of Alabama School of Medicine, 1984. xix + 116 pp. $10.95

SIR ALAN S PARKES. *Off-Beat Biologist: The Autobiography of Alan S. Parkes.* Cambridge, England· Galton Foundation, 1985 485 pp Ill £20 00; $30 00

The history of twentieth-century endocrinology remains largely unwritten, but two recent autobiographies by American chemist Charles D. Kochakian (b. 1908) and English biologist Alan S. Parkes (b 1900) vividly present the rich territory yet to be explored by historians of medicine and science These two essays depict the changing agenda of endocrinology in this century and show decade-by-decade how interest in the isolation and identification of hormones has been gradually replaced by attempts to understand the molecular basis of hormone action During this process, medical and social needs have served to redefine the questions asked and the institutions created to answer them.

Kochakian's engaging account illuminates the main features of the discovery of the anabolic effects of steroids and shows the impact of the subsequent introduction of radioactive tracers into biochemical investigations. Parkes's narrative focuses on studies undertaken during the same period on sex ratios, the reproductive cycle in mammals, factors in fertility, artificial insemination, and population issues. Kochakian's is an intellectual autobiography, showing in a scant 104 pages how a scientific problem and scientific career grow and evolve together with the techniques available to advance them In contrast, Parkes's story is a thematic reminiscence of the same period, when endocrinology was growing as a field of research and its concerns were not yet well integrated with larger scientific questions Parkes participated in the International Conferences on the Standardization of Sex Hormones in the 1930s. He helped create the (British) *Journal of Endocrinology* in 1939 and the (British) Society for Endocrinology in 1946. He was also active in eugenics, fertility, and population control organizations, and the promotion of new techniques for the farming of marine organisms His very personal account of these several related enterprises illustrates how profoundly the recognition of endocrine function has influenced twentieth-century perceptions of basic and applied biological problems Neither Kochakian nor Parkes's account is in itself a history of these perceptual and social transformations, yet each is a rich primary source for historians who wish to explore such fundamental change.

While the transition from whole-animal physiological studies, to chemical analysis, to *in vitro* biochemical studies, to the subcellular studies of molecular biology underlies Kochakian's account, Parkes's recollections reinforce historians' now strong recognition of the importance of social context for defining how scientific problems will be formulated. We see directly in these narratives the influence of the American medical context, the British agricultural context, the impact of war, and the social movements for eugenics and population control which conditioned the direction of these studies.

Kochakian's slim volume includes a personal chronology and a bibliography. Parkes's large volume surveys a diverse set of themes and possesses excellent historically significant photographs, but no bibliography and only a limited index. Together they reveal the life cycle of twentieth-century researchers who move from being laboratory investigators to statesmen of science Unfortunately, neither autobiography gives us much sense of the personality and politics of its author: both of these volumes suffer from their authors' attempted objectivity. Although these essays are readable and lively we want to know more about the individuals whose discoveries and publications are so clearly recounted. We want to meet the personalities, not just the scientists, to understand in more intimate detail the process of discovery and the chemistry between a successful researcher, the phenomena he or she studies, and his or her times.

Reviewed by MERRILEY BORELL, Department of Community Health, Tufts University School of Medicine, Boston, Massachusetts.

H TRISTRAM ENGELHARDT, JR. ***The Foundations of Bioethics.*** Oxford and New York: Oxford University Press, 1986. xvi + 398 pp. $27.95.

ROBERT J. LEVINE ***Ethics and Regulation of Clinical Research.*** 2d ed Munich and Baltimore. Urban and Schwarzenberg, 1986 xix + 452 pp. $45 00

Historians of medicine and bioethicists have often misperceived each other. Many bioethicists dismiss us as plodding empiricists who do not subject our values to searching scrutiny. Historians often criticize bioethicists for naiveté about the complexity of the past and the present and for elevating recent Western definitions of autonomy and beneficence to universal status. The tense relationship between members of the two disciplines has not been helped by the relative success of bioethicists in the medical academic marketplace They have more jobs, journals, grants and curricular time than we do.

The two books under review require us to re-evaluate our reservations about bioethics. Both authors are physician-ethicists who are committed to rigorous analysis of sources Engelhardt is a master of the history of medical thought who has on several occasions written papers that have survived peer review by historians Levine —though he will be surprised to be so characterized—is one of the foremost historians of contemporary clinical science.

Engelhardt synthesizes his prolific scholarship of the past dozen years in order to guide the moral choices of what he calls a "peaceable secular community." He explores the "intellectual bases" and "principles" of bioethics and places them in the context of history and contemporary society His chapter on "The Languages of Medicalization" is a historical essay that most of us will admire, even though we disagree with some of his methods and conclusions. In the last four chapters of the book, Engelhardt applies his historically grounded ethical stance to such controversial issues of our time as death, abortion, infanticide, informed consent, refusal of treatment, and rights to health care Many of his conclusions will be challenged, but his argumentation is rigorous and his prose lively

Engelhardt has arrayed his profound learning in the cause of historicism His peaceable community is the pluralist liberal state that was assumed to be the logical result of history by most historians of the United States from the middle of the nineteenth century until the 1960s In this state, as he says, "one comes to construe reality as the outcome of the choices of various communities of individuals insofar as they are conducted openly and are under public control" (p. 194). Whether or not such a state is desirable or ever existed, there were and are alternatives to it. Moreover, people construct reality as a result of considerably more than rational discourse. Engelhardt, in this book at least, ignores the influence of race, sex, class, ethnicity and, above all, struggles for power, on how people have perceived the world He also assumes that his polemical views are justified by history: for example, that the "authority of governments is suspect insofar as they . regulate the free exchange of goods and services, beyond protecting against such evils as fraud, coercion or violation of contracts" (p. 144). Engelhardt, like so many scholars before him, is eager to prove that a liberal state that manages competition and provides a minimum level of health and welfare benefits is the logical result of history

Unlike Engelhardt, Levine does not array history and logic to tell us how to behave He chose a more original task to describe in detail what can go wrong and what has gone wrong in clinical research during the past several decades. This second edition of a book first published in 1981 contains a substantial amount of new material

Levine's scholarship is grounded in his experience as a scientist and a clinician, his firsthand knowledge of the creation and implementation of regulations for the protection of human subjects in research, and his systematic knowledge of contemporary bioethics. His book is at once a guide to primary sources for the history of clinical research in the late twentieth century and a pioneering secondary source about that history.

Levine has invented an engaging but demanding narrative style Each of his fourteen chapters begins with issues of law and ethics, then recounts problems that have arisen in the course of research, and concludes with a systematic discussion of the solutions to these problems that have been debated and adopted by regulators and scientific investigators in recent decades Attentive readers will learn more from Levine than from the more discursive bioethicists about such troublesome subjects as informed consent, privacy and confidentiality, deception, and the strengths and weaknesses of randomized clinical trials.

Since Levine has been a leader as well as the first historian of the regulation of clinical research, his occasional autobiographical asides are welcome. His experiences and personal observations enhance the book For example, after a brilliant critique of deception as a method of research, he acknowledges that it is sometimes justified· principles and experience can conflict. Thus: "It is inconsistent that I chair an IRB [Institutional Research Board] that occasionally approves research involving deception. I regret this inconsistency so much that I experience it as infrequently as circumstances permit" (p 233)

Engelhardt and Levine ignore each other's work Levine cites only a minor study by Engelhardt and there are no references to Levine in Engelhardt's chapter on informed consent Engelhardt is a secular preacher who dazzles us with his erudition in order to persuade us to accept his version of the lessons of history and philosophy about contemporary definitions of right and wrong. Levine uses logic and experience to convince people who do clinical research to behave more decently on the grounds that they will then do more effective science Both versions of bioethics, the grand and the practical, have adherents, and historians of medicine should be familiar with both But those of us who work on twentieth-century subjects will find Robert Levine to be an essential colleague.

Reviewed by DANIEL M FOX, Health Sciences Center, State University of New York at Stony Brook, Stony Brook, New York

RICHARD E PESCHEL and ENID RHODES PESCHEL ***When a Doctor Hates a Patient and Other Chapters in a Young Physician's Life.*** Berkeley-Los Angeles-London: University of California Press, 1986 xi + 189 pp $16 95.

"Hi!" said the pretty graduate student as she interrupted my conversation with a Joyce scholar at the Centennial Symposium in Dublin. "How nice to meet two of my footnotes!" Enid Rhodes Peschel is not exactly one of my footnotes, but last year I picked from *Medicine and Literature,* a volume she edited in 1980, an epigraph suitable for a book (*Thrust Syphilis Down to Hell & Other Rejoyceana*) now with my publishers. The appropriated passage—"The dialogue between medicine and literature is, essentially, a continuing interchange between the flesh and the word" (p xii)—might well serve as a motto for her own latest book in which the tentative footsteps of a clinical apprentice are placed beside the measured paces of literary exponents as diverse as Rabelais and Emily Dickinson.

Novels of hospital life, sometimes spoken of dismissively as "cut 'em ups," form a genre unrewarding (in esteem) though highly popular Richard E Peschel has prudently avoided the temptation to become another Dr. Frank Slaughter Instead, eschewing the ephemeral, he has availed of the opportunity to collaborate with his wife, who is co-director of the Program for Humanities in Medicine at Yale University School of Medicine Their book sets his gruelling experiences in medical school and his intern year against the broader background of the sorrows and triumphs of world literature.

A medical career, as Enid Peschel points out, is a protracted *danse macabre* and her husband's first gavotte was danced in the anatomy school where groups of four students were allotted a cadaver—"as the year went by, you tended to speculate about what kind of person your cadaver had been" (p. 32). She adduces from her wide acquaintance with literature many parallels from the great authors, citing among others Villon's "Ballade of the Hanged Men" and "The Corpse" by Richard Selzer. She provides, in effect, an anthology of clinical and morbid excerpts to which readers will wish to add their own favorite items, for instance, Baudelaire's splendid picture of health (*"Ta tête, ton geste, ton air/ Sont beaux comme un beau paysage"*) and Sir Charles Sherrington's description (*Man on His Nature,* Penguin Books) of the cell and the inexorable changes that follow death. "In the sponge work of the cell foci co-exist for different operations, so that a thousand different processes go forward at the same time within it .. The various catalysts work as co-ordinately as though each had its own compartment in the honeycomb and its own turn and time Let that catastrophe befall which is death, and these catalysts become a disorderly mob and pull the very fabric of the cell to pieces" (p. 79)

The effectiveness of the counterpoise of the recent and the past is open to query surprisingly, the vignettes gathered from the great word-masters seem less immediate than the intern's tremulous emotions, his apprehension and delight which will evoke similar recollections from those of us in medical practice and make us wish for more.

Reviewed by J B. LYONS, Department of the History of Medicine, Royal College of Surgeons in Ireland, Dublin, Ireland

BOOK NOTES

R. KENNETH BUSSY. ***Two Hundred Years of Publishing: A History of the Oldest Publishing Company in the United States, Lea & Febiger, 1785–1985.*** Philadelphia· Lea & Febiger, 1985 ix + 126 pp $12.50

Lea & Febiger—as it is now known, after eighteen changes in name since its establishment in 1785 as M. Carey and Company—is this country's oldest publishing firm For most of its history it has been chiefly a medical publisher, issuing such journals as the *Philadelphia Journal of the Medical and Physical Sciences* and the *American Journal of Medical Science* and such books as Robley Dunglison's *A New Dictionary of Medical Science and Literature* (1833), Henry Gray's *Anatomy, Descriptive and Surgical* (1859), Austin Flint's *A Treatise on the Principles and Practice of Medicine* (1866), William Osler and Thomas McCrae, eds., *Modern Medicine. Its Theory and Practice* (1907–10), and William Boyd's *Textbook of Pathology* (1932) At first identified with Philadelphia and its medical establishment, by the end of the nineteenth century Henry C Lea—as the firm was then known—and William Wood & Co of New York came to dominate medical publishing in the entire country.

Although a brief commemorative volume published by Lea & Febiger themselves, this book is a valuable capsule history of an important medical publisher. It is also a reminder to historians of medicine of the value of publishing histories and publishers' archives Both sources contain biographical data about important physicians and scientists, contribute knowledge about the reception and dissemination of new laboratory and clinical discoveries, demonstrate the complex transmission of scientific and clinical information from and to Europe, and provide data about the "gatekeeping" function of editors and publishers. A book for all medical libraries, it is also one in which historians of American medicine can profitably browse

E F CATFORD. ***The Royal Infirmary of Edinburgh, 1929–1979.*** Edinburgh. Scottish Academic Press, 1984. xvi + 290 pp Ill £10.50.

To commemorate the centenary of the Victorian Royal Infirmary of Edinburgh at Lauriston Place, the Lothian Health Board commissioned a publication to describe the organizational and technical advances sustained by this institution since 1929, the ending date of Logan Turner's *Story of a Great Hospital*

Written by a retired administrative officer, this book indeed presents a narrative of the Infirmary's pre- and post-World War II activities, especially its shift from a voluntary hospital to an entity under the National Health Service with associated institutions such as the dental school and the Seamen's Dispensary One appendix lists all medical and administrative officers of the hospital Numerous photographs of staff members and hospital equipment are included

JOHN K. CRELLIN ***Medical Care in Pioneer Illinois.*** Springfield. Pearson Museum, Southern Illinois University, 1982. xi + 128 pp $15 95

This short volume augments the considerable literature on the medical history of Illinois by focusing on the southern and central parts of the state during the nineteenth century. The author describes the role of the physical environment, the disorders prevalent in the population, self-medication and patent medicines, and the different types of available healers. Most of the book concerns regular physicians, especially their education, professional societies, relations with patients, and daily practices. The author makes extensive use of the published and unpublished writings of a number of physicians who lived and practiced in the region during the second half of the century

HEINZ HARTMANN ***Once a Doctor, Always a Doctor: The Memoirs of a German-Jewish Immigrant Physician.*** Buffalo, New York. Prometheus Books, 1986 189 pp. $18.95.

The author of this slim volume recalls his medical education in Breslau, his emigration to an upstate New York family practice with the help of the Refugee Committee for the Resettlement of Physicians, and his subsequent career and family life A source for the refugee physician's plight in the 1940s

THE BULLETIN RECENTLY RECEIVED*

Götz Aly et al. *Aussonderung und Tod. Die klinische Hinrichtung der Unbrauchbaren* West Berlin: Rotbuch Verlag, 1985 (Beiträge zur Nationalsozialistischen, Gesundheits- und Sozialpolitik, no 1). 189 pp. Ill. DM19,00 (paperbound).

Götz Aly et al *Reform und Gewissen. "Euthanasie" im Dienst des Fortschritts* West Berlin: Rotbuch Verlag, 1985 (Beiträge zur Nationalsozialistischen, Gesundheits- und Sozialpolitik, no. 2). 197 pp. Ill. DM19,00 (paperbound).

Götz Aly et al. *Biedermann und Schreibtischtäter· Materialien zur deutschen Täter-Biographie.* West Berlin· Rotbuch Verlag, 1987 (Beiträge zur Nationalsozialistischen, Gesundheits- und Sozialpolitik, no 4) 207 pp. Ill. DM24,00 (paperbound).

Publius Aelius Aristides *Heilige Berichte.* Editing and commentary by Heinrich Otto Schröder Heidelberg, West Germany. Carl Winter Universitätsverlag, 1986 (Wissenschaftliche Kommentare zu griechischen und lateinischen Schriftstellern) 150 pp. DM75,00 (cloth); DM48,00 (paperbound)

Jochen August et al. *Herrenmensch und Arbeitsvölker. Ausländische Arbeiter und Deutsche, 1939–1945.* West Berlin Rotbuch Verlag, 1986 (Beiträge zur Nationalsozialistischen, Gesundheits- und Sozialpolitik, no 3) 187 pp Ill. DM19,00 (paperbound).

Walter E. Barton *The History and Influence of the American Psychiatric Association* Washington, D C.: American Psychiatric Press, 1987. xvi + 400 pp. Ill $24.95

Saul Benison, A. Clifford Barger and Elin L. Wolfe *Walter B Cannon The Life and Times of a Young Scientist* Cambridge, Mass., and London: Harvard University Press, Belknap Press, 1987 xiv + 520 pp. Ill $30 00

Peter Brain. *Galen on Bloodletting: A Study of the Origins, Development and Validity of His Opinions, with a Translation of the Three Works.* Cambridge and New York: Cambridge University Press, 1986 xiii + 189 pp. $39.50.

P. H. Curson. *Times of Crisis Epidemics in Sydney, 1788–1900* Sydney, Australia Sydney University Press, 1985. xii + 195 pp Ill. $32 50 (Distributed in North and South America by ISBS, 5602 N E. Hassalo Street, Portland, Oregon 97213).

Charles Darwin. *The Correspondence of Charles Darwin,* vol. 2, *1837–1843* Edited by Frederick Burkhardt and Sydney Smith. Cambridge and New York. Cambridge University Press, 1986. xxxiii + 603 pp. Ill. $37.50.

Horace W. Davenport. *Doctor Dock· Teaching and Learning Medicine at the Turn of the Century* New Brunswick, N.J., and London: Rutgers University Press, 1987. xv + 342 pp. Ill $35.00

René Dubos and Jean Dubos *The White Plague Tuberculosis, Man, and Society* (reprint of the 1952 edition). With a new foreword by David Mechanic and a new introductory essay by Barbara Gutmann Rosenkrantz New Brunswick, N J., and London: Rutgers University Press, 1987. xxxviii + 277 pp $27 00 (cloth), $12.00 (paperbound)

---

*The *Bulletin* reserves freedom of decision as to the publications to be included in this section Items received, other than those reviewed, are ultimately incorporated into the collection of the Institute of the History of Medicine

Bull. Hist Med, 1987, *61* 501–504

André Durand *From Sarajevo to Hiroshima History of the International Committee of the Red Cross* Geneva Henry Dunant Institute, International Committee of the Red Cross, 1984 675 pp Sw Fr. 25,00 (paperbound).

J. Worth Estes and David M. Goodman *The Changing Humors of Portsmouth The Medical Biography of an American Town, 1623–1983* Boston· Francis A Countway Library of Medicine, 1986 xv + 363 pp. Ill. $19.95 (Distributed by Science History Publications USA).

Elizabeth Fee *Disease and Discovery: A History of the Johns Hopkins School of Hygiene and Public Health, 1916–1939.* Baltimore and London: The Johns Hopkins University Press, 1987 xii + 286 pp Ill. $30 00.

Donald Fleming *William H Welch and the Rise of Modern Medicine* (reprint of 1954 edition) Baltimore. The Johns Hopkins University Press, 1987 vi + 232 pp $8.95 (paperbound).

W. Bruce Fye. *The Development of American Physiology: Scientific Medicine in the Nineteenth Century.* Baltimore and London: The Johns Hopkins University Press, 1987 (Henry E Sigerist Series in the History of Medicine). xi + 308 pp. $35.00

Robert Mortimer Gascoigne *A Chronology of the History of Science, 1450–1900* New York and London: Garland Publishing, 1987. xi + 585 pp. $50.00

Heinz Goerke. *Arzt und Heilkunde. Vom Asklepiospriester zum Klinikarzt; 3000 Jahre Medizin* Munich. Georg D W. Callwey, 1984 286 pp. Ill DM98,00.

Robert I Goler and Pascal James Imperato (eds). *Early American Medicine. A Symposium* (papers reprinted from the *New York State Journal of Medicine*). New York: Fraunces Tavern Museum, 1987. 39 pp. Ill $6 00 (paperbound).

Lindsay Granshaw *St Mark's Hospital, London. A Social History of a Specialist Hospital* London King Edward's Hospital Fund for London, 1985. xvi + 526 pp. Ill $35.00 (Distributed by Oxford University Press)

David G Green *Working-Class Patients and the Medical Establishment Self-Help in Britain from the Mid-Nineteenth Century to 1948* New York. St Martin's Press, 1985. xi + 211 pp. $27.50

John R. Guy *Malachi's Monument The Taunton and Somerset Hospital at East Reach.* East Reach, England Taunton and Somerset Hospital Trust Fund, 1986 110 pp Ill. £3 50 (paperbound)

Reginald Horsman. *Josiah Nott of Mobile Southerner, Physician, and Racial Theorist.* Baton Rouge and London: Louisiana State University Press, 1987 xiii + 348 pp. Ill. $35.00

Isabel Hunter and Shelagh Wotherspoon (comps) *A Bibliography of Health Care in Newfoundland.* St. John's, Canada· Faculty of Medicine, Memorial University of Newfoundland, 1986 (Occasional Papers in the History of Medicine, no 6). 160 pp. Ill. $Can 18 00 (paperbound).

Mary Ann Jimenez *Changing Faces of Madness Early American Attitudes and Treatment of the Insane.* Hanover, N.H., and London: Published for Brandeis University Press by the University Press of New England, 1987 ix + 219 pp $25.00.

Nicholas Kingsley (ed). *The Continuing Saga of Medical Records* (proceedings of a one-day conference held at Yeovil District Hospital, 21 June 1985). Sheffield, England: Society of Archivists, 1986. 63 pp. No price given (paperbound).

B G. Kuznetsov *Reason and Being* Edited by Carolyn R. Fawcett and Robert S. Cohen, translated by Lynn Visson. Dordrecht, The Netherlands-Boston-Lancaster

D. Reidel, 1987 (Boston Studies in the Philosophy of Science, vol. 17) xx + 441 pp. $89.50, £62.25

Bruno Latour. *Science in Action. How to Follow Scientists and Engineers through Society.* Cambridge, Mass. Harvard University Press, 1987 274 pp. No price given.

Christopher Lawrence and Ghislaine Lawrence, with the assistance of Huw Geddes and Lorraine Ward. *No Laughing Matter Historical Aspects of Anaesthesia* (catalogue of an exhibition held at the Wellcome Institute for the History of Medicine, 8 June–25 September 1987) London: Wellcome Institute for the History of Medicine/Science Museum, 1987. 84 pp Ill. £5.00 (paperbound)

Oscar London. *Kill as Few Patients as Possible and Fifty-Six Other Essays on How to be the World's Best Doctor* Berkeley, Calif. Ten Speed Press, 1987. 102 pp. $7 95 (paperbound).

John B. Neilson and G. R. Paterson. *Associated Medical Services, Incorporated. A History.* Toronto: Associated Medical Services, Hannah Institute for the History of Medicine, 1987. 445 pp. Ill. $Can 15 00.

Harald Nielsen. *Medicaments Used in the Treatment of Eye Diseases in Egypt, the Countries of the Near East, India and China in Antiquity* Odense, Denmark Odense University Press, 1987 76 pp. Ill. DKK120,00 (paperbound).

Ronald L Numbers (ed). *Medicine in the New World. New Spain, New France, and New England* Knoxville: University of Tennessee Press, 1987. 175 pp Ill $18.95.

Mitchell Okun. *Fair Play in the Marketplace The First Battle for Pure Food and Drugs.* Dekalb Northern Illinois University Press, 1986 xiii + 345 pp. $27.50

Claude H. Organ, Jr. and Margaret M Kosiba (eds) *A Century of Black Surgeons: The U.S.A. Experience* 2 vols Norman, Oklahoma· Transcript Press, 1987 xx + xi + 973 pp. Ill $50.00.

Philip J. Pauly. *Controlling Life· Jacques Loeb and the Engineering Ideal in Biology.* Oxford and New York. Oxford University Press, 1987 252 pp Ill $24.95.

Normand Perron. *Un siècle de vie hospitalière au Québec: Les Augustines et l'Hôtel-Dieu de Chicoutimi, 1884–1984* Sillery, Quebec Presses de l'Université du Québec, 1984. xxiv + 439 pp Ill. No price given (paperbound)

Claude Quétel *Le Mal de Naples. Histoire de la syphilis* Paris· Seghers, 1986 348 pp. F89,00.

James C. Riley *The Eighteenth-Century Campaign to Avoid Disease* New York: St. Martin's Press, 1987. xvii + 213 pp. $29 95.

K. F. Russell (comp). *British Anatomy, 1525–1800 A Bibliography of Works Published in Britain, America and on the Continent.* 2nd rev. ed. Winchester, England: St. Paul's Bibliographies, 1987 li + 245 pp. Ill. $70 00 (Distributed in North America by Norman Publishing, 442 Post Street, San Francisco, California 94102)

Hillel Schwartz. *Never Satisfied A Cultural History of Diets, Fantasies, and Fat* New York· The Free Press; London: Collier Macmillan, 1986. vii + 468 pp. Ill $19 95.

John F. Sena. *The Best-Natured Man. Sir Samuel Garth, Physician and Poet* New York AMS Press, 1986. xi + 215 pp Ill $34 50

Steven Shapin and Simon Schaffer. *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (including a translation of Thomas Hobbes, *Dialogus physicus de natura aeris* by Simon Schaffer). Princeton, NJ.. Princeton University Press, 1985. xiv + 440 pp Ill. $60 00

J. R. Smith. *The Speckled Monster. Smallpox in England, 1670–1970, with Particular Reference to Essex* Chelmsford, England: Essex Record Office, 1987. 217 pp. £16.25. (Order from Essex Record Office Bookshop, County Hall, Chelmsford, Essex CM1 1LX, England; checks payable to Essex County Council.)

Albert W. Snoke. *Hospitals, Health, and People.* New Haven, Conn., and London: Yale University Press, 1987. xiii + 232 pp. $27.50

Michael M. Sokal (ed) *Psychological Testing and American Society, 1890–1930.* New Brunswick, N.J., and London· Rutgers University Press, 1987 xi + 205 pp. $28.00.

Phinizy Spalding. *The History of the Medical College of Georgia.* Athens, Georgia, and London: University of Georgia Press, 1987 xiv + 290 pp. Ill $35 00

J D. Swales. *Platt versus Pickering. An Episode in Recent Medical History* London. The Keynes Press/British Medical Association, 1985. xviii + 155 pp. £45.00 (limited edition)

D. W. Winnicott. *The Spontaneous Gesture Selected Letters of D. W Winnicott.* Edited by F. Robert Rodman. Cambridge, Mass., and London: Harvard University Press, 1987. xxxiii + 211 pp. Ill $20.00.

CONTRIBUTORS TO THIS NUMBER

WILLIAM COLEMAN is the author of two recent studies on public health and epidemiology, *Death is a Social Disease. Public Health and Political Economy in Early Industrial France* (1982), and *Yellow Fever in the North. The Methods of Early Epidemiology* (1987). His address is 5701 Lake Mendota Drive, Madison, Wisconsin 53705.

MICHAEL W. DOLS is a visiting fellow at the Wellcome Unit for the History of Medicine, University of Oxford, 45–47 Banbury Road, Oxford OX2 6PE, England, where he is presently working on two monographs: " 'Majnun': The Madman in Islamic Society" and "The History of the Islamic Hospital."

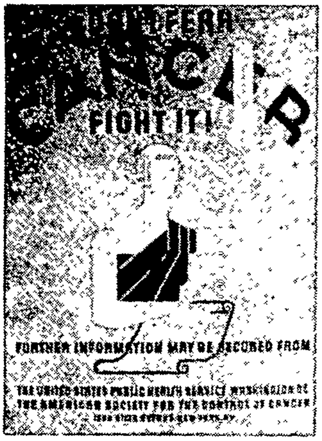
FAYE MARIE GETZ, consultant at the Wellcome Institute, London, and visiting assistant professor in the Department of the History of Medicine of the University of Wisconsin, 1300 University Avenue, Madison, Wisconsin 53706, contributed the chapter on medieval medicine to the second volume of the *History of Oxford University*. She is currently compiling a supplement to C. H. Talbot and E. A. Hammond, *The Medical Practitioners in Medieval England: A Biographical Register*.

SAUL JARCHO, a retired internist, is active in several areas of medical history, including the history of clinical medicine. He has just completed a book titled "Clinical Consultations and Letters by Ippolito Francesco Albertini, Francesco Torti, and Other Physicians." His address is 11 West 69th Street, New York, New York 10023.

SHARON KINGSLAND is an associate professor in the Department of the History of Science, The Johns Hopkins University, 34th and Charles Streets, Baltimore, Maryland 21218. She has written a history of population ecology (*Modeling Nature,* 1985) and is now working on the history of American ecology, genetics, and evolutionary biology in the twentieth century.

JAN R. McTAVISH received her master's degree in history from the University of Minnesota. She is interested in the history of the pharmaceutical industry and its impact on the practice of medicine. She can be reached through the Program of the History of Science, Department of Physics, University of Minnesota, Minneapolis, Minnesota 55455.

PAUL WEINDLING is a research officer at the Wellcome Unit for the History of Medicine, University of Oxford, 45–47 Banbury Road, Oxford OX2 6PE, England. He has two monographs currently in press: *Darwinism and Social Darwinism in Imperial Germany: The Contribution of Oscar Hertwig (1849–1922)* and *Health, Race and German Politics from National Unification to Nazism.* His current research is on the history of immunology.



The Dread Disease

Cancer and Modern American Culture

James T. Patterson

"An enormously ambitious undertaking. This is not a history of surgeons, pathologists and virologists, but of the attitudes, fears, and expectations surrounding cancer in American society."

—Charles Rosenberg,
University of Pennsylvania

$25.95

The Animal Estate

The English and Other Creatures in the Victorian Age

Harriet Ritvo

Ritvo presents the complex Victorian world of human-animal interaction, with its pets, zoos, livestock breeding, veterinary medicine, vivisection, and blood sports. $25.00

The Bog Man and the Archaeology of People

Don Brothwell

This prehistoric detective story tells the tale of the Lindow Man and other preserved people: by analyzing well-preserved ancient human remains, researchers piece together evidence of causes of death, rituals associated with and attitudes toward death, and the culture and physical environment of these ancients.

$20.00 cloth, $9.95 paper

Now in paperback

Alice Hamilton

A Life in Letters

Barbara Sicherman

"One of the most fulfilling books about the life and work of a physician that I have read in many a year. . . A beautiful piece of scholarship and a book that is a pleasure to read and to think about."

—*Bulletin of the History of Medicine*

$9.95 paper

Harvard University Press, Cambridge, MA 02138

The
American Association
for the
History of Medicine

The American Association for the History of Medicine has over 1,300 members, including physicians, pharmacists, dentists, nurses, historians, scientists, librarians, rare book specialists, collectors and individuals from such fields as the classics, literature, folklore and the social sciences. ☐ Since 1925, it has brought together interested amateurs as well as persons with professional training in history or the history of medicine. ☐ The Association holds annual, three day meetings in cities throughout the United States, such as New Orleans in 1988, Birmingham in 1989, and Baltimore in 1990. ☐ It publishes the *Bulletin of the History of Medicine*, gives several prestigious awards, subsidizes other publications on the history of medicine and does whatever it can to further interest in the field. ☐ It's simple to join. Just send $35 (which includes a subscription to the *Bulletin*) or more to:

Edward C. Atwater, M.D.
Secretary-Treasurer
601 Elmwood Avenue
Rochester, NY 14642

An Account of the Foxglove and Its Medical Uses 1785–1985

J.K. ARONSON, *University of Oxford*

This unique two-part discussion of the botany and pharmacology of foxglove features a facsimile of William Withering's classic eighteenth century text and reviews the uses of digitalis (a foxglove derivative) in modern medicine.

1986 350 pp.; 9 illus. 261501-7 $45.00

A History of the Nuffield Department of Anaesthetics, Oxford, 1937–1987

JENNIFER BEINART, *University of Oxford*

This engaging study explores key themes in the field of anaesthetics and includes a chapter written by M.K. Sykes, the present Nuffield Professor.

1987 220 pp.; 27 illus. 261648-X $49 95

Just a Word Doctor

A Perambulation in the Byways of Medical Terminology

BERNARD J. FREEDMAN, *formerly of King's College Hospital*

An erudite yet light-hearted account of the origins and associations of approximately 500 medical and paramedical terms.

1987 144 pp.; 19 illus. paper 261641-2 $8.95

High Technology Medicine

Benefits and Burdens, *New Edition*

BRYAN JENNETT, *University of Glasgow*

Analyzes attitudes regarding technology in medicine, reviewing topics such as CT scanning, intensive care, cardiac surgery, hip replacement, obstetrics, renal dialysis, and transplantation.

1986 250 pp.; 4 illus. paper 261588-2 $14.95

Medical Care and the General Practitioner 1750–1850

IRVINE LOUDON, *University of Oxford*

This book examines the large group of rank and file medical practitioners in England during the late 18th and early 19th centuries—their background and training, scientific methods and medical challenges, and social economic status.

1987 420 pp. 822793-0 $54.00

The American Disease

Origins of Narcotic Control
Expanded Edition

DAVID F. MUSTO, M.D., *Yale School of Medicine*

This timely and important study examines the relationship between public outcry and the creation of prohibitive drug laws, supporting the theory that American attitudes towards drugs have followed a cyclical pattern of tolerance and restraint.

1987 416 pp paper 505211-0 $9.95

Alexander Fleming

The Man and the Myth

GWYN MACFARLANE, *University of Oxford*

This book argues for a reappraisal of Alexander Fleming's role in the discovery of penicillin.

1985 320 pp. paper 281884-8 $9.95

Now available in paperback

A History of Medicine

Volume I: Primitive and Archaic Medicine
Volume II: Early Greek, Hindu, and Persian Medicine

HENRY E. SIGERIST

The classic account of the dawn of medical science. "Ambitious and praiseworthy."
—*Yale Review*

Vol. I: *1987 586 pp., 48 pages of photos paper 500739-5 $18.95*
Vol II: *1987 368 pp.; 34 pages of photos paper 505079-7 $16.95*

Prices and publication dates are subject to change
To order, or for more information, please write·

OXFORD UNIVERSITY PRESS
200 MADISON AVENUE, NEW YORK, NY 10016
Attn: Marketing Director for Science and Medical Books

The Faculty of Medicine of Memorial University of Newfoundland invites nominations or applications for the position of the **John Clinch Professor for the History of Medicine.** The successful candidate will have demonstrated excellence in teaching and scholarly work in the History of Medicine. The candidate should also have a significant record of research or professional achievement and the ability to interact effectively with faculty and students in the Health Sciences, Biology, History and Philosophy.

The appointee's main responsibilities are graduate and undergraduate instruction and scholarly work in the history of medicine. Other responsibilities are: to chair the History of Medicine group, to organize its activities, and to develop the Historical Collection of the library in collaboration with the Health Sciences Librarian.

A medical degree would be an asset but is not required. A higher degree in a health science, history or a related discipline is expected. Appointment effective October 1, 1988.

Inquiries or applications including a current curriculum vitae and names and addresses of three references should be sent by October 15, 1987, to:

Dr. D. Bieger
Faculty of Medicine
Memorial University of Newfoundland
Health Sciences Center
St. John's, Nfld. A1B 3V6
CANADA

In accordance with Canadian Immigration requirements, this advertisement is directed to Canadians and permanent residents.

Now in paperback!

ANCIENT MEDICINE

Ludwig Edelstein
edited by Owsei Temkin and C. Lilian Temkin
translations from the German by
C. Lilian Temkin

"Edelstein's work has contributed profoundly to our knowledge and understanding of Greek medicine, its gradual development within Greek culture, and its differences with other and later medicine."
—Harold W. Miller, *Bulletin of the History of Medicine*

"Revolutionary discoveries are assembled in this collection of Edelstein's writings. . . . They are a constant source of stimulating, fresh interpretation."—*The Lancet*

A classic study of medicine in antiquity returns to print in a new paperback edition. *Ancient Medicine* brings together much of Ludwig Edelstein's most important work on a subject that occupied him throughout a distinguished career. Included is his widely known translation of and commentary on the Hippocratic Oath.

$14.95 *paperback*

Ο
ΒΙΟΣ
ΒΡΑΧΥΣ
Η
ΤΕΧΝΗ
ΜΑΚΡΗ
Ο
ΚΑΙΡΟΣ
ΟΞΥΣ

New!

MEDICAL SCIENCE AND MEDICAL INDUSTRY

The Formation of the American Pharmaceutical Industry

Jonathan Liebenau

Since the late nineteenth century, the pharmaceutical industry has been the most profitable major manufacturing sector in America. In this, the first scholarly history of the industry, Jonathan Liebenau analyzes the decisive period in its growth—and the remarkable cooperation between science, medicine, and business that made this growth possible.

Between 1890 and 1930, as practitioners increasingly adopted a scientific approach to medicine, drug companies adapted by employing medical professionals and maintaining laboratories. Science led to important breakthroughs, but it also played an important role in marketing strategies. The work of scientists and technicians in the industry forged a new link between organized research and the competitive marketplace.

$35.00

THE JOHNS HOPKINS UNIVERSITY PRESS
701 West 40th Street, Suite 275, Baltimore, Maryland 21211

ARE YOU STILL READING SOMEONE ELSE'S COPY OF *ISIS*?

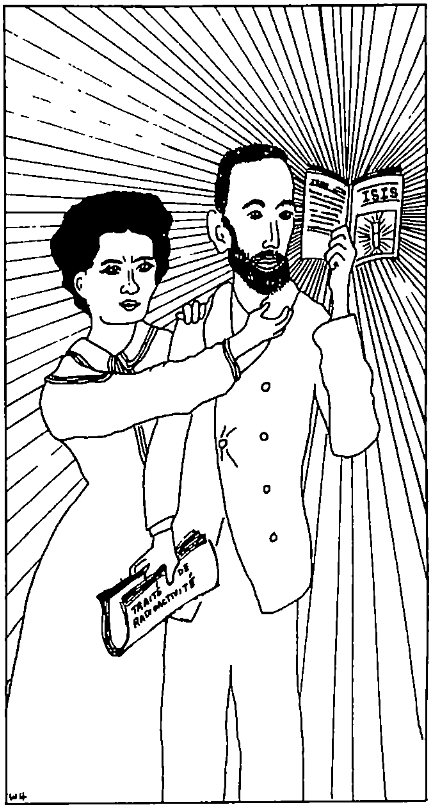
IF SO, now is the time to enter your own subscription. Isis, the official journal of the History of Science Society, is the leading journal in the field.

Isis keeps over 4,000 subscribers in nearly fifty countries up to date on all developments in the history of science with articles, critiques, and documents and translations. Its notes and correspondence and news of the profession provide useful information to professionals, educators, scholars, and graduate students.

Lively essay reviews and over 200 book reviews a year cover every specialty in the history of science, technology, and medicine.

In addition to your four quarterly issues of Isis you will also receive:

- Membership in the History of Science Society.
- The annual *Critical Bibliography,* listing over 3,000 publications in the history of science, technology and medicine from the preceding year.
- The triennial *Guide to the History of Science,* containing a directory of members and information on scholarly programs, societies, and over ninety journals in the field. The 1986 edition is now available.
- The quarterly *Newsletter,* providing current news of the profession, including employment opportunities and approaching meetings.



ISIS

History of Science Society
Publications Office, Dept. GX
University of Pennsylvania
215 South 34th St.
Philadelphia, Pa. 19104-6310

Or call TOLL-FREE
(orders only, please!)
1-800-341-1522
DATATEL-800™
6AM-9PM EST

YES! Please send me Isis for the calendar year(s) 1987 ________ and 1988 ________
$29 for one year ($16 for students). $54 for two years ($29 for students).

☐ Check enclosed. ☐ Bill me. (Issues sent on receipt of payment.)

NAME ________________________________

ADDRESS ________________________________

CITY ____________ STATE ________ ZIP ________ PHONE ( ) ________

SCIENTIA

Books in Science & Medicine

P.O. Box 433
Arlington, MA 02174

617-643-5725

CATALOGUES FREE ON REQUEST

NEW

AVAILABLE
FOR IMMEDIATE DELIVERY
THE FINEST INSTRUMENTS EVER MADE

A Bibliography of Medical, Dental,
Optical and Pharmaceutical Company
Trade Literature
1700-1939

by AUDREY DAVIS and MARK DREYFUSS

The first book ever to deal comprehensively with the trade literature of a single industry

Nearly 10,000 entries for 2,000 companies world wide, arranged alphabetically with addresses, indicating dates of establishment and incorporation where available A chronological listing of the catalogs and brochures they published, subject index and a keyed listing of where examples can be found.

This is the important new reference for collectors & researchers who need to identify and date medical objects An aid in studies of company history, introduction of new instruments, modification of products, and distribution Historians will find a wealth of data to trace manufacturing history.

Cloth covered, sewn binding, 456 pages, illustrated.
$45 00 plus $2 00 postage and handling for U S. delivery
(foreign orders will receive a proforma invoice).

ORDER NOW FROM

THE PRINTERS' DEVIL
ONE CLAREMONT COURT, ARLINGTON, MA 02174

Are there gaps in your BHM collection?

* SPECIAL SALE *

BACK ISSUES OF
BULLETIN OF THE HISTORY OF MEDICINE

50% OFF REGULAR SINGLE-COPY PRICE

Right now, you can order back issues of the BULLETIN OF THE HISTORY OF MEDICINE—some dating back more than 50 years—for $3.50 each. That's a savings of 50% off the regular single-copy price of $7.00. Also, the hardcover edition of the BULLETIN's *50-Year Cumulative Index* is on sale for only $15.00 (regularly $29.95). Take advantage of this rare opportunity to add to or complete your own collection of the BULLETIN OF THE HISTORY OF MEDICINE. Write or call today for a list of available issues and an order form. Please don't delay—*supplies are limited.*

JOURNALS PUBLISHING DIVISION
The Johns Hopkins University Press
701 West 40th St., Suite 275
Baltimore, Maryland 21211

Telephone: (301) 338-6987

LIEBURG, M.J. VAN: Het Coolsingelziekenhuis te Rotterdam (1839-1900). De ontwikkeling van een stedelijk ziekenhuis in de 19e eeuw. Amsterdam 1986. xviii,770 pp. 4to. Bound. (Nieuwe Nederlandse Bijdragen tot de geschiedenis der Geneeskunde en der Natuurwetenschappen nr. 21).
Hfl. 160,—

Ondanks de aanwezigheid van een groot aantal gedenkboeken en gelegenheidsgeschriften is onze kennis over het functioneren van het 19e eeuwse ziekenhuis in Nederland nog zeer beperkt. In deze studie over het stedelijke ziekenhuis van Rotterdam is geprobeerd aandacht te besteden aan de ontwikkeling van alle facetten van een instelling voor intramurale gezondheidszorg in de vorige eeuw: de samenhang met de nationale ziekenhuisontwikkeling met de plaatselijke gezondheidszorgvoorzieningen, de bouwkundige ontwikkeling, de sociaal-economische en medisch-sociale factoren, het functioneren van de geneeskundige en chirurgische afdelingen, de modernisering van de verpleegkundige dienst, de rol van de ziekenhuisapotheek en -laboratoria en de geschiedenis van de huishoudelijke en technische diensten. Het Coolsingelziekenhuis was gedurende de eerste decennia van zijn bestaan een toonaangevend ziekenhuis zowel wat betreft de bouw en inrichting als wat betreft de geneeskundige organisatie. Eind jaren tachtig en in de jaren negentig geraakte het ziekenhuis echter in moeilijkheden door de opkomst van de moderne chirurgie en van de moderne ziekenverpleging. De bestuurscrisis die van deze ontwikkeling de climax vormde, markeert het eindpunt van deze studie.

HARMKE W. STOLK-VAN DELEN
Wijkverpleging in historisch perspectief
Ontstaan en ontwikkeling van de wijkverpleging (1890-ca. 1930) met aandacht voor aspekten van medicalisering en professionalisering
Amsterdam 1986. 75 pp. (Verpleegkundig Historische Cahiers 2) Hfl. 17,50

Een historisch overzicht over de wijkverpleging, waarbij een antwoord wordt gezocht op een tweetal vragen: waar zijn de grondslagen gelegd voor de wijkverpleging en hoe is daarna de ontwikkeling in Nederland geweest tussen 1890 en ongeveer 1930. Gebleken is dat de wijkverpleging, georganiseerd naar kerkelijke wijken, vanuit Duitsland is overgenomen en min of meer gelijktijdig via Engeland, vooral door het werk van het Groene Kruis, haar intrede in Nederland heeft gedaan. Maar pas in 1972 komt in Nederland een speciale opleiding tot wijkverpleegster, een opleiding waar de pioniers van het Groene Kruis al sinds het begin van deze eeuw voor gevochten hebben.

Rodopi
Keizersgracht 302-304
1016 EX AMSTERDAM-HOLLAND

Cambridge University Press

Ordered to Care
The Dilemma of American Nursing, 1850-1945
Susan M. Reverby
Cambridge History of Medicine

An engaging study of the dilemmas faced by American nursing which examines the ideology, practice, and efforts at reform of both trained and untrained nurses in the years between 1850 and 1945

1987/350 pp /25604-6/Cloth $44 50/33565-5/Paper $12 95

Console and Classify
The French Psychiatric Profession in the Nineteenth Century
Jan Goldstein

Within the Western medical community, French physicians played the single most vigorous role in constituting and legitimating the science of psychiatry This book shows how and why they succeeded The author combines the approaches of intellectual, social, and political history to present psychiatry as a body of scientific knowledge, a new profession formed within the relatively fluid class society, and a manifestation of the bureaucratic state

1987/385 pp /32279-0/Cloth $49 50

Morbid Appearances
The Anatomy of Pathology in the Early Nineteenth Century
Russell C. Maulitz
Cambridge History of Medicine

This is the first detailed account of the actual events leading to the rise of pathological anatomy in France and England in the early years of the nineteenth century The book traces the emergence of this important medical tradition in political, institutional, and administrative contexts

1987/272 pp /32828-4/Cloth $47 50

Physic and Philanthropy: A History of the Wellcome Trust 1936-1986
A. Rupert Hall and B.A. Bembridge

A lucid and well-informed history of the Wellcome Trust – a charitable institution that supports medical and allied research throughout the world – this book describes the early vicissitudes of the Trust and the evolution of its policy over its first fifty years

1987/336 pp /32639-7/Cloth $39 50

Vasodilator Substances of Tissues
J.H. Gaddum
F.C. MacIntosh, Introduction and Notes

The English edition of Gaddum's classic monograph, published in German fifty years ago has long been out of print This book contains chapters on general research strategies, histamine, acetylcholine, adenosine derivatives, unidentified tissue components acting on smooth muscle, cholinergic and adrenergic neurotransmission, tissue responses to injury, and anaphylaxis, all as seen by a shrewd and well-informed observer in the middle of the 1930s

1987/200 pp /30860-7/Cloth $44 50

Professional and Popular Medicine in France, 1770-1830
The Social World of Medical Practice
Matthew Ramsey
Cambridge History of Medicine

A study of the professionalization of French medicine in the crucial years of the late eighteenth and early nineteenth centuries, when a unified medical profession emerged and the border between qualified and unqualified practice was first clearly defined

1987/368 pp /30517-9/Cloth about $47 50

Medicine and Society in Wakefield and Huddersfield 1780-1870
Hilary Marland

This book presents the first across the board study of medicine in any urban center, for any period of British history In selecting Wakefield and Huddersfield as contrasting types of Northern towns, and examining in detail their systems of medical care, Dr Marland has written a local history that says something important about the country as a whole

1987/250 pp /32575-7/Cloth $59 50

Introduction to the History of Medical and Veterinary Mycology
G.C. Ainsworth

This is the first book to provide historical background on fungi-caused diseases in man and domesticated animals The history of the research is described as well as the organisms themselves, with emphasis on the impressive developments made within the past twenty-five years

1987/240 pp /30715-5/Cloth $49 50

Victorian Lunacy
Richard M Bucke and the Practice of Late 19th-Century Psychiatry
Dr. S.E.D. Shortt
Cambridge History of Medicine

Using the career of Richard M Bucke at the London Asylum in Canada as its focus, this book explores the theory and practice of late nineteenth-century psychiatry

1986/256 pp /30999-9/Cloth $29 95

At bookstores or order from
Cambridge University Press
32 East 57th Street, NY, NY 10022
Cambridge toll-free numbers for orders only
800-872-7423, outside NY State,
800-227-0247, NY State only
MasterCard and Visa accepted

ASPECTS OF GREEK MEDICINE

E D Phillips

In this fascinating book, Professor Phillips examines the actual practice and theory of Greek medicine, focusing on the golden age from Hippocrates to Galen, whose voluminous writings summarized and organized all medical information known at the time. The core of the book is a summary of the seminal Hippocratic Corpus – the basis of medical theory and practice – selections from which are quoted directly from the ancient sources themselves.

What was the level of Greek medicine? How did it function? What was known about anatomy, physiology and pathology? How was rational thinking applied in diagnosis and treatment? How were physicians trained? What were the social and ethical attitudes of physicians? These are just a few of the many questions considered in this unique work.

©1987 (U.S. Ed.) 240 pp. **$23.95**

To order, send $23.95 plus $1.50 postage (add 6% tax in PA) to:

THE CHARLES PRESS, PUBLISHERS

P.O. Box 15715 • Philadelphia, PA 19103

(215) 925-3995

SUBSCRIB

BULLETIN OF THE HISTORY OF MEDICINE

Subscription Rates

Individuals	$24.00/*1 year* $48.00/*2 years*
Institutions	$41.00/*1 year* $82.00/*2 years*

The *Bulletin of the History of Medici* analyzes advances in medical science, e amines changes in clinical practices, and e plores how the responses of societies health care needs have varied over time a across cultures.

Published quarterly in March, Jun September, and December.

BULLETIN OF THE HISTORY OF MEDICINE

Prepayment required. Subscribers in Canada and Mexico please add $2.75 postage. Subscribers outside of North America add $6.50 air freight. *Payment must be drawn on a U.S. bank or made by international money order.* Maryland residents add 5% sales tax.

Bulletin of the History of Medicine

Mail to:

Journals Publishing Division
The Johns Hopkins University Press
701 W. 40th St., Suite 275
Baltimore, Maryland 21211 USA

☐ Enclosed is my check made payable t the Johns Hopkins University Press

totaling $________________.

Please charge:

☐ Visa ☐ MasterCard

Acct. # ________________

Expires ________________

Signature ________________

This is a ☐ new subscription ☐ renewa *(renewing subscribers please include you mailing label from a recent issue).*

Name ________________

Address ________________

City ________________

State ________ Zip ________

Country ________________
(if outside U S.)

BIN8

UBSCRIBE

BRARY RECOMMENDATION

ar Librarian:

vould like to recommend acquisition of the following
hns Hopkins University Press journal.

urnal title: ______________________________

ank you,

______________________ ______________________
nature *please print name*

____
partment

ease send orders to:

ne **Johns Hopkins University Press** *Journals Publishing Division*
1 W. 40th St., Suite 275, Baltimore, Maryland 21211 USA

OURNALS FROM JOHNS HOPKINS

UMANITIES

nerican Journal of Philology
allaloo
iacritics
H (English Literary History)
he Lion and the Unicorn
terature and Medicine
LN
odern Language
otes)
ew Literary History
ilosophy and Literature
heatre Journal
ide Angle

SOCIAL STUDIES

Bulletin of the History of Medicine
Human Rights Quarterly
ICSID Review
Jerusalem Journal of International Relations
Journal of Modern Greek Studies
Reviews in American History

JUDAIC STUDIES

Modern Judaism
Prooftexts
Studies in Zionism

MATHEMATICS

American Journal of Mathematics